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ORIGINAL COMMUNICATIONS.

THE BACILLUS TUBERCULOSIS, AND SOME ANATOMICAL POINTS WHICH SUGGEST THE REFUTATION OF ITS ETIOLOGICAL RELATION WITH TUBERCULOSIS.

FIRST PAPER.

Read, by invitation, before the Philadelphia County Medical Society, October 18, 1882,

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I INTEND, this evening, to demonstrate Koch's Bacillus tuberculosis, and, at the same time, will bring forward some points from researches of my own, which will check the acceptance of the doctrine of the parasitic origin of tuberculosis.

Only recently the low organism which is alleged to be the cause of general tuberculosis and phthisis was exhibited in this room by Prof. Whittaker, of Cleveland, Ohio, by invitation of the College of Physicians. It is through his kind instruction that we have been enabled to make similar beautiful preparations of the Bacillus tuberculosis, following strictly the method of staining in its recent improvements as described by Koch, in Berlin.

Dr. Koch's methods of preparation have been so graphically described and demonstrated by Dr. Whittaker, and have been so widely quoted in the various medical journals, that it is unnecessary for me to repeat them.

The bacilli now under the microscope were prepared from the sputa of a phthisical patient in the Philadelphia Hospital, and they correspond in every respect to those of Dr. Whittaker's preparations. Moreover, the patient has died since the sputa have been taken, and the autopsy revealed true tubercular disease. There is, consequently, no doubt of the existence of this organism in the sputa of patients suffering from this disease.

It *appears*, also, that Dr. Koch has conclusively proven, by direct experiments on animals, that this bacillus is the direct cause of tubercular disease,—viz., the genuine Bacillus tuberculosis. The experiments of Koch to prove this proposition are also widely known, having been quoted in medical journals all over the world.

The advantages under which Koch made his propaganda for the parasitic origin of phthisis were unusually favorable. His reputation and his diligence as a mycologist are certainly unrivalled in Germany since the time of the publication of his classical work on anthrax and infectious surgical diseases. He is also an excellent advocate for his cause, and an eloquent writer. Like a good lawyer, he understood how to bring forward his case well and in a convincing manner before the jury,—the medical profession at large. His recent appointment as Imperial Councillor and Chief of the Laboratories to the National Board of Health of the German Empire also gave great weight to his statements. Dr. Koch's conclusions concerning the etiology of phthisis have been endorsed by some distinguished scientists and prominent clinicians in Germany, England, and America. The newspapers of all lands have taken hold of this important matter, and spread the news of the great discovery. Pilgrims from all nations have flocked to Berlin and listened to Koch's words, have seen with their own eyes the fatal bacillus and had its effects demonstrated to them, and have returned convinced and delighted to their homes, to preach loudly and enthusiastically the great doctrine of the true parasitic origin of phthisis. Dr. Koch also demonstrated the Bacillus tuberculosis to Emperor William of Germany. The venerable monarch looked into the microscope, and was deeply impressed and convinced about the infectiousness of phthisis. Hence it must be so.

These views suit the profession exactly. The prevailing opinion has always been that there must be a specific poison of some kind, transmissible from person to person and from animal to man by food, milk, etc. The Bacillus tuberculosis fills the gap excellently, and is now a convenient explanation and proof of the infectiousness of phthisis.

The consequences of Koch's discoveries are now a matter of important consideration. In Germany, by imperial order, in military hospitals phthisical patients are separated from other cases as carefully as smallpox patients; so a gentleman tells me who has just come from Germany. Even here the community begins to regard the disease as eminently contagious. I know of an instance of a young woman suffering

from phthisis being locked up and avoided, perhaps neglected, by the members of her own family, for fear of the contagium. I have learned of several consumptives who have become worse from the mortification of having their friends avoid them, some even going so far as not to shake hands with them. The moral effects must certainly be most deleterious to these unfortunate creatures and to those who surround them.

The therapeutics of phthisis also must be governed in a great measure by the view taken of the etiology of the disease.

In Europe the profession begins to reflect a little on Koch's theory, and wants more certainty. I am delighted to learn that, in England, Austria, Russia, and elsewhere, commissions have been formed to investigate the etiology of phthisis with special reference to Koch's discovery; and whatever the truth is, it should now soon be decided. Dr. Sternberg, U.S.A., I am glad also to learn, is subjecting Koch's experiments to a careful perusal.

I also have undertaken a renewed research on the infectiousness of tuberculosis under the auspices of the University of Pennsylvania, and ample means and facilities have been furnished to extend the research in a most elaborate manner.

At present I do not pretend to be able to present positive proofs against the existence of a specific tubercular bacillus, my work not having been long enough continued in this direction. Koch's theory may be correct, but thus far it altogether lacks confirmation. He must do decidedly more work to make his results conclusive. Moreover, I can positively prove that true tuberculosis may be produced without the bacillus in question.

The fact that many prominent medical men and scientists blindly follow Koch proves nothing, so long as they have not experimented themselves in this matter.

In the present communication I intend to bring forward some of my anatomical researches in connection with scrofulosis and tuberculosis, as well as some observations of others, which will surely throw grave doubts upon the correctness of Koch's view on the etiology of tuberculosis, and also on the correctness of Koch's conclusions from his own experiments.

It seems to me that there are serious errors in Koch's work, and that he has overlooked anatomical facts and pathological laws in immediate connection with it, and has thus been led to misinterpretation of his own results. He could not have been aware of this, as it is not probable that he purposely would ignore established facts.

Anybody can make errors in research. I must confess that I have been several times disappointed in my own work in drawing and announcing too hasty conclusions. I was sorry, but it was a useful lesson, after all. The great men, however, can make mistakes just as well as we little mortals. Men like Cohnheim have been caught in serious blunders. Dazzled by his really immortal discovery of the emigration of the white blood-corpuscles, he has also furnished some researches which were proven positively to be inaccurate and incorrect. I only give this as an instance. Other great men have also made mistakes, especially some of the French *savants*. Some of the latter are particularly good-natured, however, and do not mind contradicting themselves several times in one breath, or even drawing their conclusions from the wind. Some of Cohnheim's experimental results were overthrown by our own young American workers. A great deal of good work in pathology is done in America; but it is not sufficiently recognized and encouraged by our own profession and by the teachers in American medical schools. Admiration of European pathological work is certainly justifiable; but this forms no reason why the good, honest work of Americans, even that of young men, should be left unnoticed.

Before pointing out the deficiency of Koch's proofs of and arguments for the infectiousness of phthisis and for the existence of a specific organism, the Bacillus tuberculosis, I beg leave to announce briefly the main facts of my researches on the minute structure of connective tissue in the so-called scrofulous persons and animals. I have devoted over four years to this special study, making many experiments on animals. In this research I have been aided at various times by a number of able and diligent assistants, of whom I desire to mention in particular Drs. George H. Rose, O. C. Robinson, Henry Wile, Wm. Gray, and I. W. Blackburn, and Messrs. G. A. Bodamer, W. Chrystie, and W. H. Mercur. I desire to express my thanks to these gentlemen. It would have been impossible for me alone to control and utilize the enormous material at my disposal.

Should the results and the facts obtained,

to be narrated below, prove to others as conclusive as they do to me, and be similarly interpreted, then the received doctrine of phthisis and tuberculosis will have to undergo some decided modification.

In the time allowed me this evening it would be impossible to record all the steps and details of the investigation. Desiring to explain the character of the research at once, I cannot do better than, with your permission, to reverse matters, announcing first the deductions from the research, and then to follow, as far as time and space will permit, with a brief account of the investigation and of the arguments which, to my mind, prove and justify these conclusions.

My researches clearly show the following points:

1st. The predisposition to tuberculosis in some men and animals, the so-called scrofulous habit, lies in the anatomy of the connective tissue of the individual, the peculiarity being a narrowness of the lymph-spaces, and their partial obliteration by cellular elements.

2d. Only beings with such anomalous structure of connective tissue can have primary tuberculosis, and such animals invariably do become tuberculous from any injury resulting in inflammation, or from repeated injuries.

3d. Scrofulous beings can have no other than a tuberculous inflammation, although it may remain local and harmless.

4th. Non-scrofulous men or animals may acquire the predisposition to tuberculosis through malnutrition and confinement, the latter bringing on the above-mentioned anatomical peculiarities in the connective tissue.

5th. No external etiological influences are necessary to cause tubercular disease other than those which ordinarily produce inflammation, and even scrofulous beings will not become tuberculous unless local inflammation is set up. No inflammation, no tuberculosis.

6th. Non scrofulous animals, so far as can be established now, may acquire tubercular disease through injuries of serous membranes,—viz., peritoneum, pleura, etc.,—and even here without any special virus whatsoever. Clinical observations on the post-mortem table show similar conditions and prove the same in man. (Koch's own experiments are also in favor of this proposition, as will be shown hereafter; but he has overlooked this.)

7th. The bacilli, which it is the merit of Koch to have first proved to infest tissues affected by tubercular disease, are not necessary for its causation, even if a special organism exist and be really possessed of such property. The presence of bacilli (so far as our present research goes) is secondary, and appears to *condition* the complete destruction of the tissue already diseased and infested by them, and this destruction is in direct proportion to the quantity of the organisms, which thus regulate the prognosis. The tubercular tissue seems to serve merely as a nidus for the growth of the bacillus.

8th. From the results of microscopic examination, from numerous observations upon the post-mortem table, and on clinical grounds, I have come to the conclusion that phthisis is not a specific infectious disease, but that the individuals suffering from tubercular disease are specific themselves originally, and form a special species of mankind, the "scrofulous."

9th. Scrofulosis is a condition which may arise from malnutrition and seclusion in any being, and thus may be produced artificially. It always depends upon the demonstrated anatomical changes in the connective tissue.

10th. An analysis of Koch's experiments shows that he has not proved the parasitic nature of phthisis, or that there exists a special Bacillus tuberculosis; so that the infectiousness of tubercular disease is still *sub judice*.

The idea of working up the anatomy of scrofulous persons was suggested to me some years ago by the lectures of Prof. James Tyson. Dr. Tyson in his lectures, as well as Virchow, lays great stress upon the predisposition to tuberculosis, and designates it as a peculiarity of scrofulous persons that inflammatory processes in such persons terminate ultimately in the formation of cheesy matter at the seat of injury. The general impression among pathologists and clinicians is that the lymphatic apparatus is in some way at fault in these persons, although there are no direct anatomical observations on this point on record. I thought that the minute anatomy of the tissues of such persons should be investigated, and at once began to collect the necessary material. This presented itself to me in abundance daily in the post-mortem rooms. For the study of scrofulous and other animal tissue, I had also un-

usually large opportunity. Having the good fortune to be associated with Prof. H. C. Wood in the research on diphtheria for the National Board of Health for the last three years, I of necessity had to examine microscopically the tissues of about five hundred animals (as the records show), and also those of a similar or still larger number of various animals used by members of my classes in experimental pathology in the University laboratory during the last five years. None of the animals referred to were killed expressly for this purpose; they served various purposes, but we always were careful to trace and note the histological points in question.

At first only one peculiarity struck me in the anatomy of scrofulous and rickety children, and this peculiarity is in common with that of the rabbit and guinea-pig,—viz., in all scrofulous beings all the organs supposed to be concerned in the production of white blood-corpuscles were disproportionately large,—*i.e.*, in relation to the size of the animals.* Subsequent studies of the tissues revealed, in addition, some constant and quite remarkable facts, namely, a well-defined difference in the anatomy of the connective tissue between scrofulous and non-scrofulous animals.

To the scrofulous class belong unquestionably the tame rabbit and guinea-pig and all animals in close confinement, while to the non-scrofulous belong the cat, dog, and animals at large.

I have here two specimens under the microscope, to which I invite your particular attention, as they illustrate the histological difference referred to between the normal tissue of the rabbit and that of the cat. The animals, which are representatives of the scrofulous and non-scrofulous species, were of equal age, both healthy, killed in a similar manner, and the sections, which were taken from precisely corresponding parts, are equally treated and mounted. I selected in this case the corsponding parts of the nose of the two animals. It makes, however, no difference what part of the body is taken, as long as it shows some connective tissue. The relative difference to be spoken of is equally striking everywhere in the two animals in corresponding parts of the body. At the first glance it is seen in the specimen from the rabbit that there are a great many more cells in the microscopic field than in the corresponding field in the specimen from the cat; again, that the cells which are located in both cases between the interstices of the connective tissue are predominately round and crowded in the rabbit, with only a few spindle-shaped and stellate cells, while in the cat the cells are mainly of the latter two varieties, scattered and few in number. In other respects the connective tissue proper appears similar in both cases.

The difference seen in the tissue of the rabbit and the cat exactly corresponds to a similar difference between the scrofulous human being on the one hand and a normal individual on the other. Repeated microscopic examination of well-selected cases has shown this.

Let us see now what those cells seen in the connective tissue of the specimens under the microscope signify.

To be explicit, I must briefly narrate the minute structure of connective tissue in general.

The connective-tissue fibrils are in varying number united together to form bundles (which I will, with Shakespeare, call the primary bundles); these again occasionally unite to form larger bundles (well designated as secondary bundles). The bundles arrange themselves at different localities in various manner; in our specimens they decussate at different angles and in all possible directions, leaving between them small spaces which are dependent for their shape and size upon the arrangement and the thickness of the bundles. These spaces are essentially nothing else than serous cavities on a minute scale. They communicate, however, with one another, and thus form a system of channels continuous throughout the whole connective-tissue system of the body. These channels are called lymph-spaces or juice-channels. They contain normally a small amount of serum, and it is also these spaces which harbor the

* O. C. Robinson says in connection with this point, "In studying the anatomy of the animals experimented upon, Dr. H F. Formad directed my attention to a peculiarity in the structure of the blood making organs of the two species of animals named, particularly the latter; and I have myself also had frequent opportunity to observe the following: the lymphatic glands are disproportionately large; the Malpighian bodies of the spleen are larger and more numerous than in other animals, though the organ itself is not large; the marrow of bone is usually red, and contains very little fat; the thymus gland is always of considerable size, and seems never to disappear, or, in fact, has never been found absent. Besides these peculiarities, I have frequently seen small heterotopic lymphatic structures in the interstitial connective tissue in various parts of the body. The question arises whether this evidently leukæmic condition of these animals has not something to do with their scrofulous tendency. It is possible that this surplus of lymphatic structure and of the lymphoid cells comprising them plays an important rôle in furnishing the elements for the tubercle."

enormous quantity of this fluid when the tissue is the seat of œdema. Blood or air collects in these spaces in certain pathological conditions, and we will also see that inflammatory processes have here their main seat.

There exists a special set of similar channels surrounding or rather enveloping the blood-vessels, the so-called perivascular spaces, the significance and purpose of which are the same as those of the just-described interstitial lymph-spaces, with which they are also in direct communication. These are very prominent in nervous tissues, and are best demonstrable in the brain, where the blood-vessels lie nearly free in these spaces, giving a picture not unlike a piece of wire inserted into a glass tube. In other localities these perivascular spaces do not completely ensheathe the blood-vessels, and are less distinct,—in fact, are sometimes demonstrable only in some pathological conditions. Under normal conditions both sets of channels have the office or function of conducting serum from the blood-vessels to the lymphatics, thus relieving excessive intervascular pressure. They probably play, also, a very important rôle in the creation of white blood-corpuscles from the endothelium desquamated from the walls. Each of the connective-tissue bundles spoken of above is surrounded by a distinct, not quite continuous, membrane composed of large, flat cells. These are the so-called endothelial cells; they are nucleated and closely united at their periphery with one another so as to form those sheaths which envelop the above-mentioned fibrillar bundles, and thus at the same time form the lining for the spaces between them. All that can be seen of these endothelial cells are the nuclei, which appear either round, spindle-shaped, or curved, according to the direction in which the bundles are cut, and these are the cells seen in our preparations.

In the specimen from the cat we see the nuclei of the endothelial cells at more or less definite intervals and generally of fusiform shape; some few round or irregular-shaped cells are also seen in the lymph-spaces of the connective tissue, and these are either desquamated endothelial cells or free white blood-corpuscles.

In the specimens from the rabbit the same appearances are observed, but the quantity of free, round, and irregular cells is considerably larger, and they are frequently seen to block up the lymph-spaces. Of spindle-shaped cells fewer are seen than in the cat. The source of the numerous round and irregular-shaped cells must be considered similar to those few seen in the specimen from the cat. Comparing a large number of sections taken from corresponding parts of the bodies of rabbit and cat, it is also distinctly seen that the lymph-spaces are on the average decidedly narrower and fewer in the rabbit than in the cat. The perivascular spaces are, however, equally free and similar in both.

The filling of the lymph-spaces with desquamated and germinating endothelial cells, or with wandered-in white blood-corpuscles, is a well-known fact in the pathological histology of tuberculosis, but it does not seem to be known that this is a normal condition in the rabbit and guinea-pig and in scrofulous persons long before tubercular disease ensues. Under conditions to be mentioned later, these peculiarities may be, however, occasionally less marked. In general, it may be said that the distinction is certainly definite enough. Any one familiar with the use of the microscope can distinguish the variance in the two tissues by the shape and quantity of cells, if not by the size and shape of the lymph spaces, the latter requiring more experience.

What has been said of the cat seems to hold good for all other non-scrofulous animals as far as we could trace it. The connective tissues of scrofulous and non-scrofulous individuals bear exactly the same relation to one another as the connective tissue of the rabbit bears to that of the cat.

I beg leave to describe now in short how the two tissues (from non-scrofulous and scrofulous animals) behave if they become the seat of ordinary inflammation. When a part in a non-scrofulous normal subject or animal is the seat of an acute inflammation, it is solely in the connective tissue, with its pertaining lymph-spaces and blood-vessels, that the inflammatory process makes its active display. Under the microscope all the lymph-spaces of the affected area are seen filled with cells; often they are enormously distended by them, so that the whole appears like a sponge soaked with a corpuscular liquid. Whether the cells invading our tissue are desquamated and proliferated endothelium of the lymph-

spaces, or whether they are wandered-in corpuscles, or both, we will not discuss here. They do not stay there long; however, under ordinary circumstances; they are bound to leave the tissue they invaded (resolution), or they must die together (suppuration), forming loss of substance. In either case, particularly in resolution, it is the office of the lymph-spaces to relieve a part of the exudate, and they are the means which promptly, and in due time, effect the carrying off of the mischievous and intruding cells; thus accomplishing the return of the tissue to the normal state. This will only occur, however, if and as long as the lymph-spaces are not obstructed and will allow the free intercommunication of serum between the blood-vessels and the lymphatics, which is so essential to the well-being of the organism.

If, on the other hand, a part in a scrofulous subject or animal becomes the seat of inflammation, the termination of the latter will be an entirely different one. The connective tissue is here at fault; its lymph-spaces, which are narrow and obliterated, do not permit the reabsorption of the exudate, and the tissue of the affected area lingers under the voluminous pressure of the imprisoned cells, which form tubercles. There is no other issue here, and it must die,—*i.e.*, undergo cheesy degeneration. The cheesy mass thus formed may become encapsuled by inflammatory overgrowth of connective tissue, and frequently this is the case I have seen often in rabbits that the development of tubercular disease is stopped in this way for some time. Ultimately, however, the animal will succumb to tuberculosis when the inflammatory process is renewed and extends in the manner to be described later.

The above statements are based upon direct observation from experiments many times repeated. It is distinctly seen that one and the same process, induced in both cases similarly, terminates so differently in the cat and rabbit. The experiments were made under exactly the same conditions, and, the animals being of the same age and equally in good health, it proves clearly that the inflammation is not specific, but that the animal is specific, and that this lies in the above-mentioned peculiar anatomy of the connective tissue of the animals in question.

Tuberculosis is an inflammatory process within itself; it is the natural and only kind of inflammation a scrofulous being can have. It is also evident that for its production no special cause is required, all that is necessary being direct injury to the tissue. Ordinary inflammations are caused in non-scrofulous beings by external influences, such as cold, heat, etc., and nothing more than this is necessary to produce tubercular disease in a scrofulous animal or individual.

It appears from this, and from facts to be mentioned later, that scrofulous animals do not become tuberculous unless an inflammation is induced. No inflammation, no tuberculosis. Hence it is probable that scrofulous beings do not need necessarily to become tuberculous,—*e.g.*, do not get pulmonary phthisis if they escape a bronchitis or an acute pneumonia. In fact, they may escape tubercular disease altogether, and die ultimately of other lesions if no injury to the connective tissue occurs. The details of this research will be given in a future communication.

The results of the observations above briefly narrated suggest the establishment of an anatomical criterion for the predisposition to phthisis.* Animals with this predisposition—viz., the described anatomical anomaly—constitute a well-defined species, that of scrofulous animals. The same anatomical anomaly is seen in men; and hence I think we are justified in classing all the scrofulous human beings as a pathological species of mankind. The scrofulous condition, being an anatomical anomaly, is thus not necessarily a pathological condition, and is by no means a disease in itself. It has its perfect analogue in the domestic rabbit and guinea-pig. The offspring of these scrofulous animals have the anatomical peculiarity of the connective tissue of their parents; they inherit it, and so do the offspring of scrofulous human beings.

Two important points come now into consideration.

1. There are, unfortunately, ways and means by which scrofulosis and, subsequently, tuberculosis can be induced artificially in animals normally not possessed of this condition; and the same is probably true of men.

2. True tuberculosis can be produced even in non-scrofulous animals through

* Philadelphia Medical Times, December 3, 1881.

simple injuries of serous membranes; and this seems to be also well established for men.

As to the first point. It is a well-known fact that wild beasts in confinement usually die of tubercular disease. I had ample opportunity to see this myself. In the winter of 1875–76 and the following spring a large number of all kinds of dead animals from the Zoological Garden were sent to the University of Pennsylvania. Through the kindness of Dr. Henry Chapman, I examined carefully many of them in conjunction with Drs. Andrew J. Parker and Francis Dercum, and nearly all showed tuberculosis to be the cause of death.

The first experiments to produce artificially and intentionally a scrofulous condition in the cat and dog were made by my assistant, Dr. O. C. Robinson, in the Pathological Laboratory of the University of Pennsylvania, in 1880.* This he accomplished by keeping the animals in close confinement and on rather poor diet for eight months. Injuries on the skin of the neck which previously had healed promptly now repeated gave rise to a bad cheesy suppuration, and within three more months the animals died. Autopsy revealed miliary tuberculosis of nearly all organs.

I have lately repeated this experiment on cats. Taking a piece from the upper lip of one of them, the connective tissue was found normal on microscopic examination. One year later, this cat having been kept in confinement and poorly nourished, again a part of the lip was examined, and I found the connective tissue similar to that of a scrofulous animal, the lymph-spaces being filled with many cells. No injury had previously been inflicted on the lip. The cat had been inoculated with diphtheritic and erysipelatous matter several times, both in the thigh and the back, which ultimately led to a cheesy mass at the seat of inoculation. Finally the cat was accidentally killed, and miliary tubercles were demonstrated in lungs, liver, kidneys, spleen, and lymphatic glands. Three other experiments, in which the animals were not kept so long a time, failed. One of a number of well-fed dogs which I have kept for the past eighteen months (tumor experiments) was accidentally killed, and microscopic examination showed the impairment of the connective tissue of the described scrofulous character to a moderate degree.

On the other hand, it is noteworthy that some rabbits and guinea-pigs fail to become tubercular after repeated and thorough inoculations, even with true tubercular matter. This has been proved by Robinson (*loc. cit.*). He concludes from this that there are non-scrofulous rabbits as well as non-scrofulous human beings. It would have been interesting to have examined the connective tissue of all such rabbits, but this was omitted at the time. Wild rabbits, however, I found to have a connective tissue like non-scrofulous animals,—*i.e.*, with but few cells, and the lymph-spaces free. We had a number of these animals, but in confinement they die soon, if experimented on, of septicæmia, or acute enteritis.

It is highly probable from the above experiments on animals that the normal man may acquire a scrofulous anatomy if ill nourished from a long-continued disorder of the digestive tract, from deficiency of food or exercise, etc., this condition predisposing to tubercular disease. A cold or bronchitis, which in former days passed off rapidly, now in his debilitated system hangs on and leads to phthisis. Again, under this hypothesis, it is not impossible that scrofulous persons may become non-scrofulous by the peculiar obliteration and filling of the lymph-spaces by cells being removed and relieved by proper movements of muscles and lungs, the channels being freed and broken open, as it were. Then, the dangerous obstacles to the reabsorption of any inflammatory exudate that might occur being removed, the passage of serum between lymphatics and blood-vessels goes on unimpeded, lubricating and distending the formerly dry and occluded lymph-spaces.

The *second* exceptional point in the etiology of tuberculosis is the occurrence of miliary tuberculosis secondary to simple inflammation of serous membranes in normal non-scrofulous beings. Experiments, clinical observations, and autopsies sustain this fact. At the same time, it appears that inflammatory processes affecting parts of the body other than serous surfaces do not lead to tuberculosis in non-scrofulous subjects. I will recall here that the anterior chamber of the eye, which is occasionally used as a point for inoculation with tubercular virus, is also a serous sac. Of the same character is the choroid coat, of

* An Experimental Research on Tuberculosis. See abstract, Phila. Med. Times, vol. xii. p. 130.

which ophthalmoscopic examination reveals tubercles so beautifully in cases of miliary tuberculosis.*

There are cases on record of traumatic injuries of the eyeball in non-scrofulous persons, in which general miliary tuberculosis was a consequence.

It is possible, also, that croupous pneumonia may lead to pulmonary phthisis in the non-scrofulous, on the ground that the epithelium lining the air-vesicles approaches very closely in histological character the lining of the serous membranes,—in fact, is considered by some to be endothelial. The inflammatory exudate of croupous pneumonia is fibrinous, as it is in inflammation of serous membranes. This peculiarity may also explain Tappeiner's alleged success in producing pulmonary tuberculosis in dogs (animals not predisposed to it) by making them inhale phthisical sputa distributed by a spray-producer.

First Litten,† clinician to the Charité in Berlin, and subsequently other clinicians and pathologists, called attention to the important fact that true miliary tuberculosis may be caused directly by acute pleurisy and peritonitis in persons not predisposed to phthisis, and without any cheesy masses being found in any part of the body. This is alleged to be the case especially when there is a rapid reabsorption of the exudates formed in this lesion. Again, it is a well-known fact—any text-book of pathological anatomy gives it—that inflammatory products in serous membranes give rise occasionally to peculiar nodular formations, the so-called pseudo-tubercles. The distinction of these from true tubercle is not as easily made as some allege, and it is certain that to do it, in addition to a profound knowledge of mycology, such as Koch unquestionably possesses, requires a considerable experience in pathological histology. Moreover, it is also well established that primary true tubercle occurs in the organized inflammatory products of serous membranes.

This is eminently correct. I have been fortunate enough to examine on the autopsy-table, and to submit to thorough microscopic examination, several cases in which primary tuberculosis was found profusely in all the serous membranes and in the organized products, adhesive bands, etc., formed upon them. There was perfect absence of pulmonary phthisis or any cheesy matter elsewhere; the lymphatic glands were also normal. In two other cases I observed general miliary tuberculosis, including the lungs, beyond all doubt secondary to tubercular peritonitis, and with no cheesy matter anywhere. There was no phthisical history in either case. The tubercles met with in these cases were in microscopic appearance identical with those of ordinary scrofulous cases, only fibroid change was more common in them than in tubercles originating in scrofulous persons. I will detail these cases upon another occasion.

Some interesting thoughts suggest themselves as to how the tubercular disease here originates. Litten (*loc. cit.*) lays stress upon the rapid reabsorption of the exudate, and suggests the carrying of infecting particles from the latter into the blood, as a probable cause. I think this quite plausible, but would rather suspect here a blocking up of the lymph-spaces of the connective tissue by the fibrin and molecular débris suspended in the serum which is being reabsorbed. I think that in this way the anatomical characteristics of a scrofulous tissue become artificially established. If such is the case, then it is evident that a subsequent inflammation must of necessity lead to tubercular disease. I suggest this, however, on mere hypothetical grounds, not having made any thorough observations in this direction.

The before-mentioned pseudo-tubercles, originating in the earlier stages of inflammation of serous membranes, vary in histological character from mere collections of lymph-cells held together by some fibrinous coagula, up to firm organized nodules, not distinguishable from true tubercles, and usually do lead to true tubercles. To produce them artificially in the peritoneum is a very simple experiment. Dr. O. C. Robinson did it under my eyes, by introducing simple foreign bodies into the cavity, and succeeding in three out of five or six experiments. I tried the same experiment in four dogs last summer, using chemically clean powdered glass, with one successful and exceedingly beautiful result. Koch has unquestionably produced tuberculosis in the peritoneum of his cats and

* I doubt if practitioners avail themselves sufficiently of the ophthalmoscope in the physical diagnosis of tuberculosis.

† M. Litten, Sammlung Klin. Vorträge, No. 119. Ueber acute Miliartuberculose, 1877. For further references see Wiener Med. Presse, No. 36, 1882; Charité Annalen, vol. vii., Berlin; Krankheiten der Respirations-Organe, in Virchow's Handb. der Spec. Path. und Ther., vol. i.; Virchow, Geschwülste, vol. ii. p. 725, etc.

dogs. Whether they were false or true tubercles, however, we must leave undecided: of course they all contained bacilli, as the latter were introduced into the peritoneal cavity, and, acting as foreign bodies, excited the inflammation with its natural termination in serous membranes. From what I have detailed above, one of these natural terminations is tubercular disease, so that the specific action of the bacilli is not required, even in the non-scrofulous dog. Koch could just as well have used some sand for inoculation, and saved his valuable cultures of the Bacillus tuberculosis for inoculation into some other parts of the bodies of the non-scrofulous dogs, cats, rats, etc.

Why did Dr. Koch inoculate the latter-named animals only in the peritoneum and anterior chamber of the eye, while scrofulous animals (rabbits and guinea-pigs) he inoculated indiscriminately in any part of the body? This is a mystery. Let us try to solve it.

I wish to mention some of our experiments in connection with tuberculosis.

The experiments on diphtheria of Prof. H. C. Wood and myself* have shown that those rabbits which did not succumb to the disease within a few days nearly all died of tuberculosis in the lapse of four to six weeks or more. In order to see whether the diphtheritic material acted specifically in the production of tubercle, or whether the latter was merely the result of the inflammatory process, we experimented by inoculating rabbits with non-tubercular and perfectly innocuous foreign material, such as pieces of glass, metal, wood, etc. The result was, in the majority of cases, cheesy, suppurating masses at the seat of inoculation, followed in the course of a month or more by death from tuberculosis.

To-day, I can safely testify that Dr. Wood and myself have seen die of tubercular disease proper, more than one hundred rabbits out of five or six hundred operated upon, without a single one of these animals having been knowingly inoculated with tubercular matter of any kind, and without any intention on our part to study tuberculosis in them. All rabbits and guinea-pigs subjected to injury in any part of their bodies in the various experiments, and surviving the immediate or acute effects of the latter, had, with only a few exceptions, but one fate, —viz., to die of tuberculosis, provided they lived long enough after a traumatic interference to develop the lesion in question

These facts were also particularly well brought forward by the results of a carefully conducted series of one hundred special experiments on tuberculosis, executed by Dr. O. C. Robinson, in the Pathological Laboratory of the University of Pennsylvania. (Experimental Research on Tuberculosis. See abstract in *Philadelphia Medical Times*, vol. xii. p. 130.)

In non-scrofulous animals, viz., other than rabbits and guinea-pigs, neither Robinson, nor Wood and myself, nor any other experimenter, ever succeeded in producing tuberculosis by inoculation, unless done into peritoneum or anterior chamber of the eye. No one, including Koch, ever produced tuberculosis, in animals not predisposed to it, by inoculation into the skin, for instance. Koch's records of his own experiments prove this, and show that whenever he desired to produce tuberculosis in the rabbit or guinea-pig by means of his bacillus, he inoculated indiscriminately into any part of the body; but if he wanted to demonstrate the effects of his parasite in the non-scrofulous animals, he promptly inoculated into the anterior chamber of the eye, or preferably into the peritoneum. After what has been explained in connection with inflammation in serous membranes, it is evident that these experiments do not prove that the bacillus is the cause of tuberculosis.

In a future communication I will dwell more upon the experimental induction of tuberculosis and on the histology and distribution of tubercular products. Before concluding, however, my present remarks on this point, I would like to refer to some errors into which not well-informed or too exacting experimenters and observers are liable to fall. The chief of these is that some consider nothing as tubercle which does not impress the eye as distinct nodules. Here I desire to recall that miliary aggregations are but secondary products. All primary tubercular products are simple infiltrations of lymphoid cells, like those of any inflammatory process, only that they permanently fill the lymph-spaces, making usually undue pressure upon the blood-vessels, and obliterating the latter. By the unaided eye, or with but low magnifying power, nothing abnormal is noticed,

* Research on Diphtheria for the National Board of Health, 1880, Supplement No. 7. See also our Reports for 1881 and 1882.

except, perhaps, as in the lungs, some relatively irregular thickenings of the septa or the alveolar walls. In primary tuberculosis there are only in exceptional cases more extensive circumscribed aggregations of lymphoid cells, approaching miliary nodules. Still, this infiltration of cells is sufficient to occlude blood-vessels by pressure, inducing ultimately retrograde changes of the tubercular products, cheesy degeneration of the latter, including the tissue they invade, and, finally, loss of substance.

It is this absence of distinct miliary *nodules* which has led to the belief that phthisis might exist without tuberculosis. Giant cells are also no criterion for tuberculous tissues.

Another source of error lies frequently in the interpretation of experiments. An animal may die too soon, from septicæmia or other acute effects, and in such case it will be alleged that a given interference did not produce tubercular disease; or an animal may not die at all; this especially occurs when the tubercular products remain local, *e.g.*, as an excapsulated cheesy mass. Local circumscribed tuberculosis of some of the less important parts of the body in man is also known to be harmless.

Again, as detailed before, the results of the experiments depend greatly upon the species of animals used, their age and state of health, and the part of body operated upon.

The supreme question before the medical world is now, whether the disease under consideration is really infectious. The natural history of tuberculosis, just narrated, is surely against the existence of a special poison such as now offered again by Koch. It is clearly proved that no infective agent is required to produce tuberculosis. It is possible that Koch's Bacillus tuberculosis in itself is capable of inducing the disease. There are at present no positive proofs either for or against it.

The evidence of those who have had a large experience with consumptive patients is in perfect opposition to the infective theory of phthisis. This, I think, is of more importance than experiments on the lower animals. The alleged fact that occasionally the healthy wife of a consumptive husband acquires phthisis (or the reverse), after prolonged cohabitation, can reasonably be explained by the presumption of an acquired scrofulosis from physical effects, misery of life, loss of sleep, etc.

Dr. Vincent Edwards, of the Brompton Hospital for Consumptives, testifies that during his seventeen years' experience and observations upon many thousand patients he has never observed a case of infection from person to person. None of his nurses ever contracted the disease.

The belief that milk or meat from tuberculous animals produces consumption when used as food is also not warranted by scientific observation, nor is it based upon facts.

The natural history of tubercular disease and the laws of pathological physiology are against the presumption of a parasitic origin of phthisis.

We can certainly not have parasites more pernicious than the living cells of our own body prove to be in the case of tuberculosis. Our own cells (lymphoid cells) become dislodged from their natural location and move into other regions of the tissues, where they are not wanted, and where they do harm to the tissue they invade and still more to themselves. They, however, continue to move through the body (as it seems, mainly by means of the perivascular spaces, the lymph-spaces proper being blocked up), everywhere leaving on their way small colonies of breeding cells which block up vital channels. These colonies of cells do not find enough nourishment in the new locations, and hence remain usually limited in size. Now the cells move closer together, forming nodes, to feed upon one another, and finally die and poison their host with the effete products of their dead bodies (cheesy degeneration).

The ubiquitous bacteria, which (the bacillus included) linger around in countless number upon all surfaces without the least harm to a normal individual, easily penetrate a diseased tissue and make it a nidus for their growth. Young unripe cells created by morbid processes, frequently giant cells, which under favorable conditions would have been transformed into a harmless connective tissue, from want of proper nutrition undergo retrograde change, and thus fall a prey to bacteria. While normal cells cannot be affected by bacteria (except by the anthrax bacillus, perhaps), morbid cells do form (as I have myself seen) a good culture-medium for large crops of bacteria. Various kinds of bacteria (micrococci, rod-bacteria, bacilli, and vibrios or their spores) are present together in varying proportions everywhere. Different culture media favor,

however, the development of different kinds of bacteria: so all those new formations liable to cheesy change favor the predominant growth of *bacilli*. Here belong tubercle, leprosy, glanders, lupus, typhoid infiltrations, syphilis, swine plague, and anthrax. Micrococci prefer the living blood and its white corpuscles as a medium for luxuriant development, if they succeed in getting access to it. The exanthemata and the ordinary kinds of septicæmia belong here. We cannot confirm, so far, that there is any difference between the micrococci of these last-named diseases, nor is it probable that a difference exists.

Koch has discovered that tubercle-tissue is always infested by bacilli, and this is correct; but this tubercle-tissue is not created on account of, or caused by, the bacilli. These organisms invade the tissue in question solely because it is a culture-medium favoring their predominant development.

As soon as tubercle-tissue undergoes complete cheesy degeneration and softening, the bacilli—Koch acknowledges this also—disappear from that locality nearly altogether, because no food is left and because the fat resulting in that process acts deleteriously upon them. This is also against the etiological relation of the bacilli with tuberculosis.

To consider, as Koch does, giant cells as mere special capsules of the bacilli is a mistake not warranted by anything.

Koch further claims that the Bacillus tuberculosis differs from other bacilli morphologically, and in its behavior to staining fluids. We cannot confirm this. My assistant, Mr. Bodamer, and myself, after prolonged study with instruments as good as those of Koch, and after using all known methods of staining, have failed so far to see any special features in the bacillus in question which would make it distinct from other bacilli.

If Koch's bacillus even were possessed of distinct morphological features, it would not materially help to make it a specific organism.

Prof. Wood and myself made the observation that bacteria may acquire special morphological and physiological features in culture; excluding fully the possibility of Koch's "*Verunreinigungen.*" Moreover, we have seen micrococci increase in size under certain conditions of culture. This is the more interesting, as Prof. Rothrock, of the University, made the suggestive observation that lower fungi or algæ, under culture, perhaps from pathological conditions of their own, may undergo decided, perhaps permanent, modification in their anatomy.

Whether or not the Bacillus tuberculosis stands in any causative relation at all with tuberculosis, only future investigations will show.

It appears to me, however, that the bacillus still plays a very important rôle in phthisis,—viz., perhaps conditions the fatal issue of the disease. Bacteria appear to effect the complete destruction of diseased tissues which, without being infested by them, would recover to a normal state or transform into a harmless tissue. Tissue-destruction seems to stand in direct proportion to the quantity of these organisms, which thus regulate the prognosis.

The study of bacteria as *causa mortis* is by no means less important than that as *causa* or *materia morbis*.*

NOTES UPON LILY OF THE VALLEY.

BY H. C. WOOD, M.D.

SINCE the publication of the paper of Prof. Sée upon the *Convallaria majalis*, a good deal of attention has been attracted by the plant, and there is at present much reason for further trial, and for the hope that the plant will prove a valuable addition to our therapeutic resources. A reference to the United States Dispensatory will show that it has long been known to be a cardiac poison, having been partially investigated many years ago by Russian physicians, and it is now affirmed that it is considerably used in Russia in the treatment of cardiac dropsy. Before the paper of Prof. Sée, I believe, Dr. R. D'Ary, a Russian physician residing in Rome, Mich., wrote enthusiastically as to the value of the remedy. He says, "In small doses it is a stimulant to the heart, increasing the frequency of its beats; in larger doses it is a tonic and sedative, lessening the frequency but increasing the energy and regularity of the contractions. In overdoses it is a swift destroyer of life, thoroughly paralyzing the

* In the present communication I have given the mere outlines of the natural history of tuberculosis I reserve it for future communications to give the details of the various parts of this research. The next paper will embrace a detailed account of the structure of scrofulous tissues, with appropriate illustrations, so as to facilitate to others the perusal of my work. This will be followed by a research of Mr. Mercur's on phthisis.

heart. Over digitalis it has a most important advantage in the absence of a cumulative effect, at least so far as personal observations allow me to judge. On the other hand, I have noticed that some patients seem, from idiosyncrasy, unable to endure it even in small doses. Wherever these unpleasant effects — manifested by dyspnœa, faintness, pain at the heart, etc. —become manifest, alcoholic liquors seem to me the promptest antidote. I would, therefore, strongly advise, in every new case, to begin with minimum doses and gradually increase until the desired effect is obtained, which generally takes place very promptly."

Dr. Formad states that in his native country, Roumania, the lily of the valley has been ever since his recollection largely employed as a domestic remedy and also by the profession.

Knowing that Dr. M. Fussel, of Chester Springs, Pa., had used the remedy with advantage, I wrote to him, and received the following reply, which was not prepared for publication, but is at the present juncture well worthy of it.

"My dear Doctor,—I have used the 'Convallaria' in three cases, in form of infusion of plant (leaves, stem, and root), as I find it in September and October, eight ounces of bruised plant to a pound of boiling water, of this, two ounces every two hours.

"Mr. A. K——, æt. 67, for two years past has had palpitation and feebleness of heart's action, difficulty in ascending elevations, and, finally, inability to lie down, anasarca of extremities, with effusion into the cavities; heart-sounds obscured, with evident dilatation; had been treated with digitalis with usual varying effects.

"After three days' use of the convallaria infusion there occurred a colliquative diarrhœa, also diuresis, to which patient objected as too debilitating, when the dose was reduced, but in a few days the patient was pleased that his breathing was freer, his heart 'fluttered' less, and he could lie down. The heart-sounds were not only more distinct, but there was more force and uniformity in its action. He continued the use, and shortly was able to ride out and visit me. The improvement continued for some weeks, until he had an apoplectic seizure, on the night of the 9th of October, when he died. Was the convallaria in its tonic effect on the heart a factor in this?

"Mrs. J. H—— used the infusion with a view to reducing the anasarca of the extremities, and toning the heart. We were both sure we had employed a valuable remedy to this end.

"Mrs. D—— used the remedy, and insisted that there was less effusion into the limbs, and that her respiration was easier. There was organic heart-disease.

"As you will see, my observations have been necessarily imperfect, hardly to be regarded as of value. I have not yet procured any of the preparations of the principles of the plant, but desire to."

NOTES OF HOSPITAL PRACTICE.

BELLEVUE MEDICAL COLLEGE.

CLINIC OF PROF. LEWIS A. SAYRE.

A CASE OF SPONDYLITIS—REMARKS ON THE WIRE CUIRASS AND THE PLASTER JACKET IN POTT'S DISEASE IN YOUNG CHILDREN.

I BRING before you to-day, gentlemen, a little child suffering with Pott's disease (spondylitis), age 2 years and 5 months. I have never seen this child before. It is brought to me by Dr. A. J. Wolff, late of the United States army.

You will notice the position in which this child is standing,—its head and shoulders thrown back to balance itself, and all of the muscles of the trunk made rigid to prevent any movement of the spine. We learn that fourteen months ago this child fell down-stairs a distance of some fourteen or fifteen steps. Within a short period the mother has noticed that the right leg has been drawn up. Now, here is a little fellow whose disease of the dorsal vertebræ is very high up, and who has at the same time such an enormous abdomen and very small pelvis that it will be almost impossible to apply the principles of treatment by the plaster-of-Paris jacket and head-rest here. This child, being so small, would very probably come under the category of Mr. Howard Marsh, his statement, however, being that the plaster jacket cannot be applied to a child under nine years of age. We will have to treat this little patient in the horizontal position, the object of the treatment being to give rest to the diseased parts, which are the bodies of the dorsal vertebræ, and to relieve them from all pressure. That is the whole principle.

Under the old plan of treatment, the patient was kept in bed for months, and sometimes years, but the attendants neglected to apply extension to relieve the vertebræ from pressure; and thus, if cured at all, they were cured with deformity still remaining. When the patient was placed upon his back, they should have used extension in order to prevent such deformity as you see in this child. In such a case,

where you cannot use the plaster jacket and head-rest, the best substitute is this little wire cuirass. It is the best thing you can substitute for the plaster jacket and head-rest for these small children. The cuirass, as you see, is simply a wire framework, well padded, in which the child is laid, and its feet brought down to the small foot-pieces of the cuirass, to which they are fastened by a roller bandage, a broad band being passed around the thorax to keep the child in the apparatus. The child can then be taken out in the open air, which is of great advantage and benefit. The instrument should of course correspond with the size of the child. You will find in many cases that you will have to make yourself such alterations in the instrument to suit the case. A little mechanical knowledge is therefore an absolute necessity in this branch of your studies. I have very often seen a little child in this condition, with this enormous abdomen from indigestion, and by putting them in the horizontal posture the digestion becomes more perfect and the abdomen less distended with gas, and you can then put on the plaster jacket and head-rest. The distention of the abdomen having subsided, the pelvis becomes prominent enough to support the jacket. Several children have been brought to me completely paralyzed and the abdomen enormously enlarged, and by putting them in the cuirass for a time the abdomen has been reduced to the normal size, and I have then applied the jacket. You will notice that the child (previous to my putting it in the cuirass), when carried by the nurse, is held in an upright position, which is very detrimental in this disease. It is of course impossible for the nurse to carry it in a horizontal position, as the head of the child falls back; whereas when placed in the cuirass the child can be carried in any position with perfect ease and comfort. Now, always remember that where you have caries of the vertebræ, in no case put weight on those vertebræ, or even allow the child to assume the erect posture, as that causes additional pressure. If the child is so small as to require a diaper, you can apply it across the cuirass. This child, you will observe, has been circumcised, and Dr. Wolff has just given me a new explanation of Pott's disease, as furnished him by the Homœopathic Hospital. He states that they informed him this was the cause of the disease. I can hardly credit such a statement, and therefore do not give it to you as a fact, as there is no reason why circumcision should have any relation in producing this difficulty of the spine.

[The child was then placed in the cuirass, the feet secured to the foot-pieces of the instrument, and a bandage passed around the thorax and abdomen, a roller bandage being fastened around the legs.]

As soon as the child can walk, it is much better for him to be put in the erect posture. The plaster-of-Paris jacket, with the head-rest, is then the best treatment you can secure; but as long as the abdomen remains distended or the pelvis so undeveloped as to forbid the application of the plaster jacket to furnish firm support, the cuirass is the only method to be adopted.

PARALYTIC TALIPES TREATED WITH ARTIFICIAL MUSCLE AND ELECTRICITY.

Here is a boy 8 years of age, whose mother informs me that four years ago he had the measles. On recovering from that disease he lost the use of his hands and feet. He has also had spinal meningitis, the mother states. He had improved very much, but last winter he had an attack of sickness, and again lost the power in his feet and hands. He has, however, to a certain extent recovered the use of his upper extremities, the principal difficulty now being with the feet. The little fellow now has talipes valgus, with some equinus. The question is whether we can relieve this child without making section of the tendo Achillis. This right foot I can bring to its natural position, and while holding it there I get no spasm upon making point-pressure upon the tendon. I conclude, therefore, that in this case the tibialis anticus muscle is deficient in power. I shall therefore apply an artificial muscle, according to the plan of Mr. Barwell. This consists of strips of adhesive plaster with an eye at one end. I now pass these strips around the foot so that the eye in the strip will come just at the point of insertion of the tibialis anticus. This is now secured with a roller bandage, and thus our insertion for the muscle is formed. We now form the origin of the muscle by taking a small piece of tin, formed slightly concave to fit the leg, at the top of which is an eye. I next take two strips of adhesive plaster, cutting in each strip two longitudinal slits the width of the piece of tin, through which I pass the tin, and in

this manner it is held in the centre of the strips. A strip of plaster is now placed under the tin and reversed over the lower edge, and we can now apply the dressing, bringing the eye of the tin at the point of origin of the tibialis anticus, then secure it firmly in position by means of the strips of adhesive plaster, which are to be passed around the leg, covering the whole with a roller bandage from the foot to the knee. We now have both the origin and the insertion of the muscle secured. I now take a small piece of rubber tubing, in each end of which is sunk a shot with a hook attached. One end of this, you observe, I hook into the eye at the origin of the muscle, and the other end I hook into a piece of light chain, which has been secured at the insertion of the muscle, the elastic force being regulated by the links in the chain according to the amount of contraction you desire to overcome. In this manner we secure an external artificial tibialis anticus muscle. We will allow the child to wear this for a time, until the flexor muscles can be restored to their normal condition, using electricity to aid in securing this result. There are many cases of *club-foot* that can be cured by this simple plan of Mr. Barwell's, without tenotomy.

Now, here is an important point involved, and one which I wish you to remember. If I bring this boy's foot to its normal position, and, while holding it in a natural position, by making point-pressure upon the tendo Achillis when stretched to its utmost I secure a spasm of the muscle, that muscle must be cut before we can overcome the deformity. If, on the contrary, it does not produce a spasm, constant traction will cure the deformity without section. The rule is that when you put any muscle, tendon, or fascia upon the stretch, and while upon the stretch point-pressure produces a spasm, it ought to be cut. I could not, as you have observed, bring this boy's foot to a right angle, and yet I am hardly satisfied with it, as I do not get a spasm with every pressure I make. I will therefore leave it for a time, to see if he will recover with the treatment I have just applied, and without division of the tendo Achillis.

In using electricity in this case, you pass a small needle down through the bandages to the integument at the origin and insertion of the muscle, in this manner convey the electricity to the integument, and thus obviate the necessity of removing the bandages. By this means we endeavor to develop the atrophied muscle, and in time do away with the artificial one applied. If you are going to overcome a contracted muscle, you endeavor to approximate the origin and insertion of the muscle before you apply electricity. By the constant traction of the artificial muscle just applied, we can in time overcome the contraction of the peroneal muscles; but the traction should never be so strong that the strong muscle cannot re-deform the part if it wants to. If I were to prevent that, I should weaken that strong muscle and make it good for nothing. I simply desire to equalize the power between the flexor and extensor muscles. In this boy's case the peroneal muscles are too strong. I therefore secure this artificial muscle in such a manner that the peroneals will yield by the continued traction, but I have not made it so strong that the boy cannot deform the foot if he wishes to.

[The boy, to prove this, then contracted the peroneal muscles, and gave the foot the appearance of talipes valgus; but the resisting power of the artificial muscle overcame the contraction of the peroneal muscles, and brought his foot back again to the normal position.]

You observe, as I hold the child's arm up perpendicularly, that the hand falls forward, indicating that the flexor muscles here are stronger than the extensor; and yet on irritating the extensor muscles, as I now do, the hand assumes an upright position. This child, the mother states, was seen by a physician four years ago, and he told her the child would grow out of his difficulty, and that is the reason she had not taken any steps in the matter until the present time. That is a very unsafe plan to follow, as in some cases the patient may become incurable, and thus, instead of growing out of it, grow into the deformity. This boy I will again present to you at a future clinic.

[As the child left the room, the improvement in his walking, owing to the application of the artificial muscle, was remarked by all present.]

[NOTE.—October 11, 1882.] I here bring before you again this little fellow, upon whom we applied Mr. Barwell's dressing for the cure of talipes valgo equinus at my last clinic. The child, as you observe, walks with much more grace and ease.

The mother also states that she noticed an improvement in his general condition as early as the next day after the application of the dressing. I will continue this treatment for some time, and in the mean while carefully note the results.

TWO CASES OF SPASMODIC PARALYSIS DUE TO GENITAL IRRITATION.

I here bring before you a young lad sent to me from Broome County, in this State, the son of a medical gentleman, who has kindly consented for me to bring him before you. It is a case of much interest, and, as it is a subject I may have to bring before you during the winter, I have taken this opportunity as a beautiful illustration of the disease and its practical working upon the nervous system, it being much more easily comprehended by this means than by any verbal description I might employ. This boy is 12 years of age. His intellect is wonderfully bright. I was perfectly amazed at his rapid answers to my questions. He has never been able to walk without assistance, but could at times manage to cross the school-room by holding to the backs of the seats or desks. He, however, has the use of his arms. You observe that he walks on the very end of the metatarsal bones of the great toes. The adductor muscles are strongly contracted, so as to bring the knees directly across each other. This deformity is called scissor-legs. The knees are partly flexed, and the legs also are partly flexed upon the thighs. It is impossible for me to abduct his limbs, and, as you observe, he cannot stand alone. When lying down, he can by a great effort place his legs so that I can get my two fingers between the knees. His feet in this position are three feet apart. By great force I can bring his legs parallel with each other, but it is about as much as I can do. When let alone, you observe, the muscles instantly contract, one knee riding over the other, and the feet being inverted. The knees, as you observe, are flexed, but by some little force I can bring them nearly straight, and when I bring them in this position, my assistant holding at the heel, and make point-pressure upon the semi-tendinosus and biceps muscles, I get no reflex spasm, showing that these muscles can be stretched to be of use without the necessity of their division. Now I have the foot at a right angle, and even at more than a right angle, and, my assistant meantime keeping the leg straight at the knee, I make pressure upon the plantar fascia and tendo Achillis; but I find no reflex spasm. It is probable that these muscles can be stretched and brought into their proper position. Now, if I can retain the foot at a right angle without producing a reflex spasm, it shows that these muscles do not require cutting: therefore the left leg can probably be brought into proper vitalized action without cutting the tendons.

We will now take the right leg. Here you observe how the tendo Achillis is drawn up. You notice that by slow persistent effort I can gradually bring down the foot, but the knee is still slightly flexed. The right foot I find I cannot bring to a right angle by any amount of force, and when I make point-pressure upon the tendo Achillis I get a reflex spasm, and I also, upon pressure upon the plantar fascia, secure a reflex spasm. This shows that there is no mechanical means by which I can treat this right leg successfully until I have severed these contractured tissues.

Now, what is the cause of all this? Here is incoördination. The boy tells me that, by taking his time to think of it, he can bring his foot down to the normal position; but it moves without his will or direction when moved suddenly. There is an irregular spasmodic muscular action all over the lower extremities, and the flexor and adductor muscles, being the stronger, give us this deformity. He has never had any inflammation of the spinal cord or its meninges; neither has he ever had any convulsions to produce this difficulty.

Now, when I come to examine his genital organs, here you will observe the orifice of the prepuce is contracted almost to a pin's point, completely imprisoning the glans penis, leaving but a small orifice through which the urine can escape. You will observe that there is quite a large glans hidden under the prepuce, unless this large size is owing to some collection of secretions beneath the prepuce. It is, of course, impossible to have cleanliness around the penis with the glans in this condition. This induces a constant irritation, which causes an erection of the penis, and which produces a deranged condition of the nervous system, causing these muscular spasms, with more or less paralysis. Now, you will observe that upon my touching the prepuce he has an instantaneous spasm all over the lower extremities.

In the first place, we must remove the cause of this irritation. I shall not cut the tendo Achillis of his right leg, which gives the reflex spasm, until I have removed the cause of this genital irritation and note the result produced by the circumcision. This being a private patient, I cannot operate before the class. I will, however, endeavor to bring him before you at a future clinic.

This man that I now bring before you represents the same difficulty in the adult that you have just seen in that little boy. You will observe the curious shoe he is in the habit of wearing, with its broad flat base. There is no arch for the instep whatever, as the arch of the foot is entirely absent. He can walk a short distance, but afterwards he cannot walk at all. He states that he has suffered so much that he is willing to undergo any operation for the purpose of securing relief. You will observe that he is a stout, strong man, 28 years of age, and remarkably well developed, with one single exception. You will observe on the outer side of the spine of the tibia there is a wasting of the tibialis anticus muscle. You see this deep groove on the outer side of the tibia in both legs. There is atrophy of both tibialis anticus muscles and loss of development from some cause. From the lack of power in these muscles to hold up the arch of the foot, the foot drops down, so that the scaphoid bone receives the pressure of the body, and the foot becomes everted. A reflex action has been produced, causing the peroneal muscles to contract in such a manner that it is impossible to invert the foot. When I make pressure upon the cords of these muscles, after putting them upon the stretch, I prpduce a reflex spasm. It is therefore useless to attempt anything in this case until I have severed these tendons, both feet being in the same condition. You observe the scaphoid bone prominently projecting on either side, and the impossibility of inverting the foot by any amount of mechanical means I may apply. After I have severed these tendons, I shall bring the feet into the normal position, and endeavor to restore the paralyzed anterior tibial muscles by means of the daily use of electricity and massage, for the purpose of exciting nutritive action.

I was in hopes that by putting a steel spring under the arch of the foot I should be enabled to treat him without cutting the tendons, but, unfortunately, these peroneal muscles are contractured to such an extent that they must be severed. This being a private patient, I cannot perform the operation here, but I hope the gentleman will allow me to present him to you at a future clinic, in order that you may note his condition after the operation.

[The operation was performed the following day at the residence of the patient, and the feet at once restored to their normal position, and secured by broad strips of adhesive plaster passed around the feet, and thence up the inner sides of the legs, and secured by a roller bandage.—Rep.]

New York, October 4, 1882.

TRANSLATIONS.

The Prevention of Syphilis—Its Relations to Clandestine Prostitution in Paris.—Dr. Martineau, at the conclusion of a series of clinical lectures on the therapeutics of syphilis (*La France Médicale*), made the following most appropriate remarks: "Gentlemen, to cure syphilis is good; but to prevent it, to hinder its development and propagation, is better. This is the goal the physician should strive for. I could not, therefore, terminate this study of the therapeutics of syphilis without indicating to you some prophylactic measures, old or new, employed by physicians and municipalities. This study, however, would be too long; permit me to defer it to another occasion. To-day I wish to confine myself to a few considerations which may serve to lead you to meditate upon this great problem of sociology.

"The prophylaxis of syphilis comprises two problems for solution, according as it is looked upon as individual or general. The first consists in preserving the individual from syphilis. These measures consist in the use of dilute alcohol or lotions of chloral, eucalyptus, eau de Cologne, vinaigre de Pennès, or much-diluted Labarraque's solution, before and after impure coitus. I do not speak as a preservative means of the *condom:* it is the more dangerous because of the false security which it gives and the negligence which it occasions.

"*General prophylaxis* comprises some questions very important to solve. Prostitution is carried on in two ways: by registered women (*femmes cartées*), and by

others (*femmes libres*). The former are subjected to visitations which take place every fortnight (twice a month). I do not need to dwell upon the absolute insufficiency of these visits. If the material conditions do not interpose, registered women ought to be examined every day, in order that the physician might learn the fact of the development of the venereal disease even before it is suspected. In all these cases, where are involved questions of public health of such importance not only to the individual but also to the state, municipalities should be able to take sanitary measures more complete and superior to those in force at present, and to proceed to make these visits every two or three days at least. All that is wanted for this is a larger medical staff.

"The latter class, in the present state of legislation, is not subject to any control or to any medical examination. But, if we consult the statistics, native and foreign, we see, relatively to this subject, that regulated prostitution gives, for the propagation of syphilis, a means five or six times less than clandestine prostitution. The surveillance of the police should, therefore, be especially directed to those women who devote themselves to clandestine prostitution. Here, I know, comes up the question of the liberty of the individual; which it is not easy to touch, and which renders the solution of the problem difficult. However, when it concerns the prevention of the development of a disease which interests the generality by the perturbations which it introduces into the reproduction of the race, the individual should disappear, and the legislator should not stop short of the measures most proper for drying up the source of the contagion. Among the means the execution of which would be easy, it seems to me that submitting to a special examination every individual, man or woman, who is arrested on the public streets would be of the highest necessity. If found diseased, he should be consigned to a special hospital until completely cured. If necessary, if convicted for the cause which led to his arrest, the time spent in the hospital might be counted as part of the sentence. Gentlemen, I leave these considerations for your meditations. I would have been able to develop a much greater number, but, apart from the fact that this sociological dissertation would lead us too far from the subject which I wished to treat of before you this year, I propose to study it in a special work upon prostitution, and all the questions which it gives rise to, for which I ask you for a few months' indulgence. But, in order to show you that this study of clandestine prostitution forces itself upon communities, and that it is urgent to remedy it promptly, it will be only necessary for me to cite a few figures which prove the extension of syphilis. The Lourcine Hospital, which admits only women who devote themselves to clandestine prostitution, received, in 1871, 1460 cases of venereal disease; in 1881 it received 1964; and the wards are constantly full. In spite of all our efforts at each weekly consultation to take in, by introducing supplementary beds, a much greater number, we are obliged to refuse them. All this proves to you that the police measures are absurdly futile (*dérisoires*), and that clandestine prostitution is augmenting, and that by this means syphilis develops more and more. It is, therefore, urgent to act most quickly, and to bring an efficacious remedy to the propagation of syphilis. The administration of Assistance Publique, in permitting to the staff of the Lourcine Hospital the free dispensing of medicine, facilitates the cure of syphilis. It belongs to the commonwealth to check the progress of clandestine prostitution, the agent of the propagation and extension of syphilis. If it is not sufficiently armed with authority by present legislation, let it call for the promulgation of a law more complete and more severe."

Osteotomy and Tarsotomy in Club-Foot.—At a recent meeting of the Paris Academy of Medicine, Jules Guérin (*La France Méd.*, September 21) read a communication on congenital club-foot and its treatment, which he concludes as follows:

"1. That tarsotomy, ablation, and resection of the bones of the tarsus in order to remedy club-foot, even the most marked, in the infant, is an operation which, in the name of principles and practice, should be reproved as one of the most grave abuses of contemporaneous surgery.

"2. That this method, which results in a useless mutilation, dangerous from the double point of view of the form and the functions of the foot, can always be avoided and supplemented by the true orthopædic method, which comprises tenotomy, syn-

desmotomy, massage, and orthopædic apparatus.

"3. That tarsotomy (at the most excusable only in the adult, and for inveterate club-foot) has not yet shown itself preferable, on the score of the dangers to which it gives rise, and the services it renders, to the treatment of the deformity by apparatus and shoes intelligently adapted to the deformity.

"4. Finally, it will not do, in order to justify culpable experiment of orthopædic tarsotomy, to invoke the possible applications of this method to the deformities resulting from disease of the bones of the tarsus after the disappearance of accidents causing them; these applications cannot be confounded in any way with those proposed for club-foot. A reservation is made with regard to the place of operations of pseudo-tarsotomy: experience, which alone will enable it to be estimated properly, has not thus far permitted it to be determined."

THE INTESTINAL ORIGIN OF URINARY ALKALOIDS.—In a communication to the Société de Biologie, last August, Bouchard announced the discovery of certain alkaloids in the urine of those suffering from infectious disease, in which he pointed out chemical analogies existing with the ptomaïnes, and expressed the opinion that these are furnished by the disassimilation of infectious agents, rather than by morbid elaboration of the material by the animal cells. He also concluded that the morbid alkaloids, like the cadaveric alkaloids, are of vegetable formation. Although at that time he had not been able to detect these substances in normal urine, he has since then, by a modification in his method, been able to detect traces of these alkaloids in the urine of healthy persons, although in much smaller proportion than in the others.

The existence of alkaloids even in traces in healthy urine seems at first sight as if it should ruin the theory of their vegetable origin. But if in infectious diseases there are vegetable organisms in the tissues or in the fluids, there are likewise in health enormous quantities of microbes in the digestive tube. It is possible, therefore, in the normal state that some vegetable alkaloids may be formed in the intestine, thence absorbed and carried into the blood, and finally to be eliminated by the urine. Examination of the alvine discharges confirmed this hypothesis: recent fecal matters invariably contain these alkaloids in health as well as in disease, and in enormously larger proportion than in the urine. These fecal alkaloids in health are multiple, and vary in their chemical reactions. They vary in quantity in proportion with the amount of the intestinal fermentation. In an ordinary case of diarrhœa from using indigestible food, without fever or colic, the author estimated that at least one-third of the liquid portion of the putrid dejections was constituted by microbes. From twelve grammes of this he extracted alkaloids in proportion approximately of fifteen milligrammes per kilo. The chemical characters of the alkaloids in the urine are repeated in the fecal alkaloids; and anything which reduces the amount in one will reduce it in the other. The following statements are made in conclusion:

Alkaloids exist in the body of living individuals in the normal state.

These alkaloids are formed in the digestive tube, and apparently are elaborated by vegetable organisms, the agents of intestinal putrefaction.

The alkaloids of normal urine represent a part of the intestinal alkaloids, absorbed by the digestive mucous membrane, and eliminated by the kidneys.

Those diseases which increase intestinal putrefaction, by the same process augment the quantity of the urinary alkaloids.

Considering as probable that alkaloids may, in certain infectious diseases, have for their origin the microbes spread among the tissues and fluids, it appears certain that in typhoid fever a part, at least, of the urinary alkaloids are of intestinal origin. —*Revue de Médecine*, October.

BACTERIA IN GONORRHŒA.—It has finally been demonstrated that a specific urethritis may be distinguished from a simple urethral discharge by the aid of the microscope. Leistekow (*Deutsch. Med. Zeitung*) declares that microbes are present in considerable numbers in the thin milky discharge of chronic gonorrhœa, and have been detected in a case of twelve months' duration. They are less frequent in the thick creamy pus of recent acute gonorrhœal inflammation.

DR. HUGHLINGS JACKSON, in a recent address, says very truly that too much specialism in teaching tends to produce prigs rather than practitioners.

PHILADELPHIA
MEDICAL TIMES.

PHILADELPHIA, NOVEMBER 18, 1882.

EDITORIAL.

ISOPATHIC THERAPEUTICS.

ONE of the most unpleasant pages of medical history is that upon which is inscribed the long list of nauseous and repulsive agents which at various times in the past, during the reign of empiricism, have been administered by ignorant and vulgar attendants to those so unhappy as to fall into their hands. The principle that unusual emergencies warrant extraordinary measures has seemed to suggest to a certain class of minds the use of the most fantastic and offensive remedies. Since the dissemination of a knowledge of the physiological action of drugs, of course the further resort to the crudities of Paullini's *Dreck-Apotheke* has become impossible for those claiming to be scientific physicians, although some traces of it still linger in country districts.

More reprehensible and not less disgusting than the medical employment of human excreta, or of those of the lower animals, was the refinement (!) introduced into Hahnemannism by a German horse-doctor named Luz, about 1796, of administering internally the morbid products taken from another diseased body. Literally adopting the doctrine that like cures like, Luz, in the treatment of smallpox, gave the purulent discharge derived from smallpox sores; in syphilis the remedy was taken from the surface of a chancre; and so on. Notwithstanding the utter absurdity of this doctrine and the repulsive character of the treatment, with the added danger of spreading infectious disease, the author of the isopathic method, as it is called, was not without followers and imitators. Other diseases were likewise attacked and the list considerably extended. Surprising as it may seem, some of these remedies are still in use, and may, even in this city, be obtained prepared *secundum artem* in homœopathic pharmacies. In the American Homœopathic Pharmacopœia for the current year (published by Boericke & Tafel, New York, 1882) the following attractive titles of "isopathic remedies or nosodes" appear: *anthracin*, *glanderine*, *gonorrhin*, *leucorrhin*, *syphilinum*, *buboinum*, etc. The late Dr. Constantine Hering is said to have introduced *psorin* (derived from pustules of psora,—the itch) for chronic skin diseases, and to have used it largely in his practice. Owing to his teaching and influence, as we learn from the above authority, this abomination is now used more than any of the others. It is not clearly seen how the administration into the stomach of even potentized pus will dislodge the *acarus scabiei* from its burrows in the skin; but the experiment is less dangerous than the internal administration of the virulent morbid products of syphilis, smallpox, anthracæmia, and glanders, and perhaps less repulsive than the buboinum, the gonorrhin, the leucorrhin—Faugh!

A CORRECTION.

IN the Medical News column of *Gaillard's Medical Journal* appears a paragraph to the effect that "oil has been struck" upon property belonging jointly to the Pennsylvania Hospital and the Pennsylvania Institute for the Blind, situated in the western part of the State, and, also, "that there are hundreds of applications for leases for the land. The property is now estimated to be worth from two to five millions of dollars."

Mr. William G. Malin, the respected steward of the hospital, pronounces this very largely a newspaper *canard*. It is true that a Mr. Cook, of Philadelphia, bequeathed his estate, comprising several houses in Philadelphia and some four thou-

sand acres of forest-land, principally in Warren County, to the institutions named, nearly forty years ago; but it was charged with several annuities, and the estate cannot be divided until these cease. The houses in this city are now the most valuable portion of the legacy, the wild lands being leased at nominal rates in order mainly that they shall be properly cared for. So far as is known at the Pennsylvania Hospital, there is no oil on the property, and the lands are not productive of income to the trust. The entire bequest is at present valued at not far from four hundred thousand dollars. The statements, therefore, with regard to the oil and the millions, unfortunately do not appear to be warranted by the facts.

We make no apology for occupying so much space in to-day's issue with the paper of Dr. Formad to the exclusion of other matter, but desire to direct attention to it as the result of very much labor, and as affording the most plausible explanation of tuberculosis recently offered. The parasitic theory of Koch does not accord with the well-known clinical facts of the disease, is therefore highly improbable, and, we believe, will be eventually disproved. It has been accepted with a rush, and probably will continue its meteoric flight until it passes out of sight. The paper and specimens of Dr. Formad have been referred to a carefully-selected committee by the County Medical Society, which committee owes to its Society, to itself, and to the subject, a very careful consideration of the matter. We hope in a future issue to print an elaborate report from this committee. If Dr. Formad's statements and observations are correct, his theory is fairly proved; if they be confirmed, foreign pathologists will have to look well to their laurels, lest they be transferred to the New World.

PROCEEDINGS OF SOCIETIES.

PATHOLOGICAL SOCIETY OF PHILADELPHIA.

THURSDAY EVENING, SEPTEMBER 7, 1882.

The VICE-PRESIDENT, Dr. J. SOLIS COHEN, in the chair.

Carcinoma mammæ. Presented by Dr. C. B. NANCREDE for Dr. CHAS. WIRGMAN.

MRS. M., æt. 48 years, the mother of three children, and had nursed all her children but the last, which was born sixteen years ago. Never had had abscess of breast, traumatism, or eczema of the nipples, although she had experienced pain in the right breast when nursing. There was no carcinoma in her family history. About the middle of June, 1882, she first noticed a lump in her right breast, at its upper inner quadrant, about the size of an egg. A few nights previously she had a severe lancinating pain in the right breast. It did not seem to grow till after an exploring needle had been inserted, when the growth became softer, much larger, very painful, and the skin and superjacent veins showed marked changes. August 6, 1882, the growth was still freely movable, and a mass the size of a pigeon's egg could be felt in the axilla. Dr. Wirgman removed the whole breast by two semicircular incisions, opened up the axilla, and removed all the glands up to the clavicle. Although slow in healing, the case has done well since operation.

This case presents special points of interest. Its history and appearance were eminently suggestive of a rapidly-forming sarcoma, either cystic or one into whose substance hemorrhage had occurred. Upon careful examination under ether, the discovery of the enlarged gland suggested the improbability of sarcoma. After removal, the macroscopic appearances once more threw doubt on the diagnosis, as there was for at least one-half, if not more, of the circumference of the growth a distinct *appearance of a capsule;* the tumor had been broken down by a hemorrhage into its substance. Subjected to microscopic examination, the specimen was again puzzling, since sections of the first pieces embedded showed in nearly every portion of their extent small spindle cells of a connective-tissue type. A second piece revealed a typical carcinoma of the soft variety.

Recurring carcinoma of mamma and axillary glands. Presented by Dr. C. B. NANCREDE.

The patient was aged 37 years. Before the discovery of the primary tumor, about eighteen months back, she was in perfect health, although she had undergone much mental anxiety. Hearing a vivid account of another case of carcinoma mammæ, her mind became

deeply impressed. Shortly afterwards she discovered a growth in the upper inner quadrant of the left breast, which had attained to the bulk of a small orange within one year after its first discovery. She lost much flesh from the time of the discovery of the growth. She had never suffered from traumatism, and, although she had suckled one child, she had never had sore nipples. There was no hereditary history of carcinoma. In less than two months after a removal of part of the breast, a small nodule appeared in the cicatrix, while the axillary glands enlarged rapidly. On July 8, 1882, there was a small nodule in the middle of the original cicatrix, while the axilla was occupied by the mass of indurated glands. The growth partially embraced the axillary artery, and the radial pulse was decidedly affected. Not being allowed to remove the whole breast, I freely excised the small recurrent growth, and after a tedious dissection removed the axillary tumor, which I here present, laying bare the artery and vein for a space of over an inch, clearing everything out to the clavicle, and distinctly recognizing the coracoid process of the scapula. I cannot refrain from emphasizing the importance of the thoroughness with which this axillary dissection should be performed. Not a single gland should be left. When the operation is properly conducted, there is hardly any hemorrhage.

This case was treated on Listerian principles, but with a spray of acetate of alumina, and the wound was dressed with the same. There was no inflammation, heat, pain, or subsequent induration, and, if I remember rightly, the case required but five dressings until the wound became superficial, and fewer would have been necessary had perfect coaptation been secured. One or two points where stitches made marked tension showed a surrounding blush, which disappeared on the removal of the stitch, thus showing that the *irritation of tension* was the trouble. The temperature rose to 100.2° at the end of the first twenty-four hours, after which it remained under 100°. The pain, after the removal of the stitches, amounted to nothing. I believe that this is the first case where acetate of alumina has been used in this city in a Listerian operation, and its success disposes of the absurd statement that carbolic acid *is* Listerism.

Carcinoma of stomach. Presented by Dr. J. H. MUSSER.

This man applied to the medical dispensary of the Hospital of the University of Pennsylvania for treatment early in April of this year, and it was without difficulty that malignant disease was diagnosticated. He was a farmer, of good habits, 53 years old, previously in good health. For the last six months he had suffered from "weakness of the stomach" and general debility. He had lost much flesh, and had constantly a severe sickening pain in the epigastrium, extending to the upper part of the lumbar region, which became much worse within an hour after eating. Appetite was poor; tongue clean and pale; bowels constipated, with troublesome flatulence. A tender, non-pulsatile, movable tumor extended across the epigastrium from the margins of the ribs on one side to a similar site on the other, one inch and a half above the umbilicus. He presented an anæmic, cachectic appearance.

Dr. H. Plank, of Morgantown, took charge of the case, and wrote to me, April 21, 1882, that the patient had been benefited by treatment, but that he was confined to bed by sheer exhaustion. June 5, the doctor reported increased weakness and emaciation, with pain along the left side and shoulder. June 10, he commenced vomiting undigested food, mucus, and grumous purulent matter. He died June 20, of exhaustion, after an illness of nine months.

Specimen.—One-fourth of the pyloric end of the stomach is involved in the growth, which extends along the greater curvature for four inches, along the lesser two inches, and completely encircles the organ. The stomach-walls in front of the disease are dilated, the muscular coat being hypertrophied and the mucous membrane congested. The mass encroached upon the calibre of the viscus so as almost to occlude it. The tumor consisted of three nodules, one of which was ulcerated on its mucous surface and presented the appearance of a scirrhus. The glands in the lesser omentum were diseased.

Spindle-celled sarcoma of thigh. Presented by Dr. J. HENRY C. SIMES.

The patient was 60 years old, an Irishman. Two years ago, he first noticed at the lower and outer part of the thigh a small swelling, which grew rapidly to the size of a hen's egg, when it was removed. Shortly afterwards a second tumor was noticed in the cicatrix, having the same character as the previously removed growth. This was also removed by operation, and again, in a still shorter interval, a third similar growth was developed in the same locality, which was also removed by the knife. When admitted to the Episcopal Hospital, he had at the lower and outer part of the thigh a linear cicatrix about two inches long, beneath and adherent to which, as well as to the surrounding integument, was seen a tumor as large as a walnut, movable upon the deeper tissues, painless, dense, and irregularly nodular. There was no glandular enlargement observable. No other tumors were present. The tumor was readily removed with the adherent overlying skin. Microscopic examination showed that the neoplasm consisted entirely of large spindle-shaped cells, which contained large oval nuclei.

THURSDAY EVENING, OCTOBER 26, 1882.

The PRESIDENT, DR. JAS. TYSON, in the chair.

Hypertrophy of the prostate gland, accompanied by profuse and fatal hemorrhage. Presented by Dr. J. B. ROBERTS for Drs. J. M. ADLER and WM. HUNT.

THE patient, aged 66 years, weighing 150 pounds, of regular habits, had enjoyed good health until within one year past. On a number of occasions during the past year he had slight hæmatinuria. He passed urine with ease, but complained of slight perineal pain. On the 12th of September, while in usual health, he was attacked with sudden, acute pain in the bladder, which he was unable to empty. Dr. Adler saw him in a short time, when the patient complained of great hypogastric pain, and was much prostrated, with a blanched, sallow, cold skin, and a rapid and feeble pulse. A well-defined pyriform swelling occupied the hypogastric region, extending upwards to the umbilicus. After stimulants and morphia had been given, about one pint of fluid blood was drawn off by the catheter, after which, this instrument becoming blocked, a double one was introduced, by means of which injections of warm water were thrown into the bladder and another pint of broken-down coagula was removed. A solution of alum, twenty grains to the pint, was then introduced into the bladder and allowed to remain. Despite the internal use of ol. terebinth. and ol. erigeron., with opium suppositories, the hemorrhage continued, necessitating recourse to the catheter, injections, etc., to free the bladder from coagula. Death ensued on the sixth day, from exhaustion induced by the repeated hemorrhages. The diagnosis arrived at by Drs. Hunt and Adler was carcinoma of the neck of the bladder.

Sectio cadaveris.—Upon incising the hypogastrium, the distended bladder was at once seen, containing nearly a pint of clotted blood. This was removed by the hand, through an opening in the viscus, when Dr. Roberts felt near the vesical neck, protruding into its interior, a pear-shaped mass about the size and shape of the adult uterus. This was evidently a greatly-enlarged middle lobe of the prostate gland, covered by unaltered mucous membrane. The lateral lobes were also enlarged. The mucous lining of the viscus was smooth and congested, presenting at one point two small circular depressions with cleanly-cut edges. Owing to circumstances, no further examination of the body was made.

DISCUSSION.

Dr. ESKRIDGE treated recently an interesting case of recurring hæmaturia, supposed to be due to a varicose condition of the veins of the vesical neck. The patient was a man aged 77 years, who five years ago, and at intervals since, had lost considerable blood. The former attacks had yielded readily to ergot, but shortly after the onset of the last one Dr. Eskridge had found the bladder distended with a large clot, which he had been unable to break down by injections of either alkaline or acid solutions. The secretion of urine was suppressed during the last twenty-four hours of the patient's illness, the blood drawn from the bladder presenting no characteristic odor. The man died apparently from uræmia, two or more severe chills preceding death, although no convulsions occurred, and he remained conscious to the last. Unfortunately, no post-mortem examination was obtained.

Dr. FORMAD thought that the growth resembled rather a sarcoma than a carcinoma. He had seen two instances of round-celled sarcoma of the prostate. All growths starting from the epithelia of the genito-urinary tract, as well as from the cavity of the uterus, the kidneys and supra-renal bodies,—in short, growths of all the organs arising from the middle layer of the blastoderm, microscopically resemble sarcoma, and usually prove to be such when microscopically examined.

Dr. TYSON said that this specimen possessed a special interest for him, inasmuch as he had had his attention forcibly directed to the differential diagnosis of a simple hypertrophy of the prostate, from malignant disease of that organ, by having lately under his care a gentleman in whom ergot at first proved of much benefit, but in whose case the catheter was soon demanded. This instrument was used with unusual skill and gentleness by the patient himself, notwithstanding which blood occasionally followed its use. Exceedingly severe pains next developed, radiating from the bladder to the testicles, groins, and inner aspects of the thighs. Emaciation soon set in, and he died at the end of fifteen months. At the autopsy malignant disease of the prostate was found, involving by infiltration the lateral aspects of the bladder and the neighboring parts, so as to compress the nerves, thus accounting for the radiating pains complained of. He would like to know from Dr. Roberts whether his case presented this symptom of radiating pains, and also the source of the hemorrhage, as the smooth surface of the growth, and the healthy condition of the mucous membrane of the bladder, are such as to excite surprise.

Dr. ROBERTS, in reply to the various questions propounded, said that, having only made the post-mortem examination, he knew nothing beyond the facts given in the notes read. As to the source of hemorrhage, he would call attention to the two small erosions of the mucous membrane of the bladder as the probable source.

Report of the Committee on Morbid Growths.—"The specimen presented by Dr. Roberts, upon microscopic examination, is found to consist of the histological elements composing

the prostate gland. There is no evidence of any neoplasm, except a numerical hypertrophy of the structures of the organ. The specimen is a hypertrophic prostate gland."

Caseous degeneration of the kidneys. Presented by Dr. J. B. ROBERTS for Dr. DUNMIRE.

Owing to Dr. Dunmire not having seen the woman until within a few hours of death, the history is of necessity imperfect. She was a married woman, 39 years old, whose husband is said to have infected her with some form of venereal disease. The husband had been dead for about one year when the patient first came under treatment. There were no evidences of syphilis, so that the supposed venereal affection of the past had been presumably gonorrhœa. When seen, September 14, 1882, she was exceedingly ill; gave a history of general ill health for the past few years, but dated the present trouble some weeks back, when she had bathed in the surf while menstruating. This was followed by a chill, since when she had steadily grown worse. When Dr. Dunmire saw her, she complained of sore throat, difficult deglutition, anorexia, sick stomach, pain in the back, with sharp pain running towards the groin, especially on the right side, tenderness over the abdomen, and frequent scanty micturition. The pulse was 140, the temperature 103°, and there was profuse leucorrhœa. An unfavorable prognosis was given, which was soon verified by her becoming unconscious; and she died six hours later.

Autopsy.—The abdomen alone was allowed to be examined. All organs healthy except kidneys and bladder. The latter contained a little urine and mucus: its walls were much thickened, and its lining membrane was congested. The left kidney had little true kidney-structure left, but was converted into a group of seven or eight cysts containing a white cheesy material of a moderately firm consistence. The ureter was much dilated and thickened for about three inches from the pelvis of the kidney. The right kidney was normal in outline, but when incised revealed one large cyst with creamy contents, and also another small cavity containing a few minute calculi. Several of these could be felt through the walls of the normal ureter, thus accounting for the ante-mortem renal colic. The perinephritic structures were unchanged, as well as the capsules of the kidneys, although these latter were perhaps more adherent than normal.

Lymphomatous tumor of the mediastinum. Exhibited by Dr. W. S. LITTLE for Dr. G. C. SMITH, of Rondout, New York.

A young man æt. 24 years had been but a few days under Dr. Smith's care, having come from Boston, where his physician had pronounced him phthisical, and had recommended a sea-voyage. During the past few months small nodular masses had developed in the muscular tissue of the right chest-walls, near the median line in front, and also posteriorly. The axillary and supra-clavicular glands were involved. Shortly after Dr. Smith first saw him he developed marked dyspnœa, and died suddenly, without any evidences of marked lung-disease, except perhaps some symptoms of pleuritis. There was apparently mitral disease; anasarca, especially of the lower extremities, gradually developed.

Sectio cadaveris.—The skin was hard and friable; nodular masses were found disseminated through the muscular tissue of the chest-walls, which had undergone some species of degeneration; the costal cartilages presented evidences of a degeneration similar to that seen in the muscles. On removing the sternum, the subjacent tissues were markedly pigmented, and the anterior mediastinum completely obliterated by a mass of the size and shape of the half of a large lemon, which pressed against the heart. The large bronchi were involved in the growth, otherwise the lungs seemed healthy, and evidences of slight pleurisy were found. The pneumogastric nerves were both involved, chiefly the left, and on further dissection the disease was found to occupy all of the lower parts of the posterior mediastinum, involving the contiguous osseous tissues. The nerve-involvement explains the sudden death. The diaphragm was also involved in the lower portion of the growth. The four portions of the growths shown to the Society are—1st, one of the subcutaneous nodules; 2d, a small portion of the left lung near its root; 3d, a portion of the anterior mediastinal growth, with part of the trachea, bronchi, and aorta; 4th, one-quarter of the tumor which, involving the diaphragm, projected from the left thoracic wall into the chest-cavity. The growth was considered to be carcinomatous at the autopsy.

DISCUSSION.

Dr. FORMAD inquired whether there were any other evidences of cancer in the remainder of the body.

Dr. LITTLE replied that none were detected.

Dr. FORMAD then said that he was unaware of any specimen of primary carcinoma of the mediastinum on record, and moved the reference of the specimen to the Committee on Morbid Growths, as it was probably a sarcoma.

Report of the Committee on Morbid Growths.—"The mediastinal growths are found, on microscopical examination, to consist of a mass of hypertrophic lymphatic glands, and pigmented. There are also seen adipose and fibrous tissues in a state of active proliferation."

Cirrhosis of liver in the stage of enlargement.
Exhibited by Dr. E. T. BRUEN.

T. W., aged 20 years, colored, has worked on a farm since boyhood, and has been much exposed to weather. His habits were temperate; he was free from either syphilitic or malarial taints. Father is still alive; the mother died of phthisis. He was never robust, but had had only one severe illness,—viz., typhoid fever,—from which he convalesced perfectly, but he readily "took cold." He was first seen by Dr. Bruen, at the University Hospital, in January, 1882, when he gave the following history. Abdomen began to swell two years ago, with neither pain nor tenderness. Was obliged to rise at night to urinate. The abdominal swelling increased, and the previously regular bowels became constipated. Occasional sharp, shooting pains were felt across the chest when lifting weights or working hard, and also slight, dull pain over the liver, lasting for a few moments only. When seen, abdomen measured fifty inches. On January 19 he was tapped, nineteen quarts of fluid being removed, rendering plain a much-enlarged liver, covered with smooth nodular elevations, with the apex-beat of the heart displaced upwards into fourth interspace. March 18, five gallons more fluid were removed, after which pleural and bronchial complications arose, which soon subsided. May 6, paracentesis by capillary needle was resorted to, which was followed by much localized tenderness around the site of the puncture. Symptoms of peritonitis developed next day, which terminated life the same evening. During life the diagnosis was most difficult and interesting. The enormous size of the liver, the palpable bosselation of its surface, giving a sensation like that of crepitating tissue, as though fluid lymph had been thrown out, and finally his abstemious habits, with absence of either syphilitic or malarial taint, suggested malignant disease. The excessive rarity of primary carcinoma or sarcoma of the liver at his age, with his family history, negatived this view. He had had some dyspepsia. Enlargement of the liver, connected with catarrh of the bile-ducts, would have presented symptoms of jaundice, and intermitting temperature, terminating by death from cholesteræmia. The case, then, was one of simple cirrhosis.

Sectio cadaveris.—The abdomen contained six gallons of purulent fluid. Both the parietal and the visceral peritoneum were covered with a thick coating of inflammatory lymph, tinged with blood from multiple capillary hemorrhages. The abdominal veins were all replete with blood. The liver weighed nearly five and a half pounds, was of a nutmeg appearance, on section was indurated, and presented a bosselated, nodular appearance. The gall-bladder was thickened, and contracted about two-thirds in bulk. The bile-ducts were normal. The spleen was covered by a pseudo-cartilaginous capsule, but was otherwise normal, as were also the stomach, pancreas, intestines, kidneys, and supra-renal bodies. The abdominal lymphatic glands were slightly enlarged.

DISCUSSION.

Dr. SEILER remarked that, having seen the case during life, it was almost impossible to divest one's self of the idea of malignant disease. He thought that the projections were the unaltered portions of the liver, which had been compressed and squeezed out by the contracting interstitial tissue.

Dr. BRUEN remarked upon the obscurity of the etiology.

Dr. TYSON asked Dr. Formad, who had examined the specimen microscopically, whether he considered it to be in the first or the second stage of the affection.

Dr. FORMAD replied that he considered it to be in the commencing second stage, and detailed the microscopical appearances.

Dr. TYSON, after briefly adverting to the causation of cirrhosis, said that his reason for asking Dr. Formad whether he considered that the organ was in the first or the second stage of cirrhosis, was that some few years since an important insurance case had been argued in our courts where the defence was set up that the man had not a cirrhosed liver because it was enlarged. For his part, he had no doubt that a liver could be in the second stage of cirrhosis and yet be enlarged. There might be enlargement from fatty infiltration concurrent with interstitial inflammation.

C. B. NANCREDE,
Recorder.

NEW YORK ACADEMY OF MEDICINE.

STATED MEETING, NOVEMBER 2, 1882.

DR. FORDYCE BARKER, M.D., President, in the chair.

DR. W. E. FOREST read a paper on "*The Management of Labor with Reference to the Prevention of Subsequent Uterine Disease.*"

There was an unquestioned relation of cause and effect, said the author, between the puerperal state and uterine diseases. In one-half of the cases of uterine disease the trouble dated from some previous confinement, and it became us, therefore, as obstetricians, to look and see if the responsibility rested in any degree upon us. He would strive first to make his remarks practical, and, secondly, to found his statements as far as possible upon anatomical and physiological facts.

Uterine disease as a sequel of labor might arise from two general conditions: first, laceration of the cervix and pelvic tissues; and, secondly, subinvolution of the uterus and vagina, with or without laceration. Laceration

of the cervix was the first in time as well as in importance. The author then discussed the causes of lacerations and the manner of obviating them, and referred to the writings of Dr. Emmet and Dr. Sinclair, in which it appeared that the most frequent cause of laceration of the cervix was a rapid first stage of labor. Dr. Forest, however, did not believe that a rapid first stage of labor often produces laceration. He referred to statistics in support of his view, and stated that dilatation was a physiological and not a mechanical process: it was really a relaxation rather than a dilatation. The preparation for this process commenced weeks before labor. There might be no more pressure upon the cervix in rapid than in tedious labor, since the cervix gave way or relaxed before the coming head. There was normally a harmony of action between the zones of the uterus in labor, and when this was disturbed by the abnormal nervous condition of the patient it should be restored by the administration of chloral, morphine, etc. Tedious labor, or rather tedious first stage of labor, had been pointed out as only a possible cause, not a most important cause, of laceration. Statistics, however, did not bear out this assumption; on the contrary, it was shown to be a most frequent and important cause. This part of the subject was illustrated by diagrams made from frozen sections of the pelvic organs, going to prove that there were anatomical reasons why tedious labor should predispose to the accident of laceration. The external os did not dilate satisfactorily, the cervix became greatly lengthened and thinned, its natural resiliency was impaired, and after long-continued contraction of the body of the uterus, and pressure by the head, there was great liability to laceration of the cervix, either at the utero-cervical junction or at the os externum. The remedy was evident,—namely, to prevent tedious labor by restoring the harmony of action between the body of the uterus above and the cervix below. Chloral and morphine were the agents usually employed, and their administration should not be delayed until the patient is worn out. Moderate doses should be given, so as not to paralyze the uterus, but so as to regulate nervous action. Gentle digital dilatation of the os was also a very important means of restoring harmony of action between the os externum and the lower uterine zone.

The author believed that the forceps, when used carefully, very seldom caused laceration. Abnormal presentation, and also premature rupture of the membranes, might act as a cause, but they could not be considered in detail on the present occasion.

Laceration having occurred, notwithstanding all our efforts to prevent it, what shall be done to avoid future uterine disease? One important thing to be done was to keep the parts clean by injections of disinfectant solutions. To attempt to keep the lips of the wound in apposition by stitches was hardly to be thought of. He had in a few cases tried the slipping of an elastic band over the cervix, thus bringing the parts together, and the results had justified a further trial of the method.

With regard to subinvolution, Dr. Emmet had stated that he had never treated such a case without there being present also more or less laceration of the cervix. Statistics did not show that laceration of the perineum was a cause of this condition; on the contrary, it seemed that subinvolution occurred less frequently when laceration of the perineum was present, and the author was of the opinion that this apparent paradox might be explained by the fact that stricter cleanliness was then observed. It was probable that if the laceration extended through the sphincter, or beyond it, involution would be interfered with. Septicæmia is a potent cause of subinvolution, even where it is so mild a case as to give rise to very slight elevation of temperature. Among the causes might also be considered loss of blood, general debility of the nervous system, and too early leaving the bed.

Dr. BECKWITH was called upon to open the discussion, and said that there were many points of interest in the paper which might be discussed, but that he felt unable to do so without previous preparation. He spoke of the importance of always making a careful examination of the uterus and its appendages, and of the vagina, within six weeks after confinement.

Dr. CASTLE believed that a disparity between the size of the brim of the mother's pelvis and of the head of the child was sometimes the cause of laceration of the cervix instead of rigidity of the os, as was supposed. He believed that the softening which took place in the cervix up to the time of labor was a preparatory process to easy dilatation, and that the œdematous condition of the parts which led to it was therefore normal and desirable. Premature rupture of the bag of waters rendered laceration liable to occur.

Dr. C. C. LEE said there were many excellent points contained in the paper, with which he fully agreed. He had found that in the majority of cases in which the laceration was sufficiently extensive to attract the physician's attention, its origin could be traced to tedious labor, and he believed that the accident took place because of the œdematous or macerated condition of the tissues which was then present. Laceration had occurred very seldom, according to his observation, in cases of rapid labor. He referred to the presence of arterial hemorrhage as an indication of laceration. The source of the hemorrhage might be discovered by making an examination with the Sims speculum. As

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to the treatment of laceration when it was present, he had done the immediate operation for restoration of the parts in two cases. In the first case, that of a primipara, he used silk sutures, but within two days they tore through the tissues, and the result was a complete failure. The second case was that of a multipara, and the wire suture was used, but the result was the same as in the former case. With regard to the use of the elastic band, he could not understand how it could be kept on the parts. An important reason for hastening a tedious labor had not been mentioned,—viz., the fact that this was the origin of nearly all cases of vesico-vaginal fistula. He fully agreed with the author of the paper as to the manner of hastening tedious labor by the administration of the drugs which tended to restore the nervous system to its normal condition, and by resorting to manual dilatation.

Dr. W. T. LUSK said it was considered a great recommendation of the accoucheur among women if it were said of him that he never lost a case. He thought, however, that in the future the accoucheur's merits would be estimated rather by the health of his patients some time after delivery. There were two classes of cases of rapid labor: one was that in which the patient's nervous system was in such an abnormal condition as to lead her to bear down strongly almost from the beginning of labor, and in such cases bad laceration of the cervix was liable to take place. He did not believe that digital dilatation of the cervix was often justifiable. Instead thereof he used Barnes's dilator, which rendered the cervix simply tense and tended to excite normal uterine pains. Under its use the cervix became soft, regular pains took place, and the dilator was expelled. If found necessary, it could be reinserted. He criticised severely the practice pursued by some accoucheurs of making traction upon the forceps during uterine pain, at which time the tissues were rendered rigid and were therefore in great danger of being ruptured by such a procedure. Traction should always be made during the intervals between pains.

Dr. S. T. HUBBARD thought that in the case of the statistics quoted by Dr. Forest an examination of the condition of the pelvic organs should have been made twenty days after confinement, and then, probably, in many of the cases where laceration had been found at the sixteenth day the wound would have been found to have healed. Fifteen or twenty drops of laudanum often prove of great benefit in certain cases of tedious labor.

ANOTHER AMERICAN MEDICAL WORK is to be read abroad. The *London Lancet* characterizes Prof. Lusk's recent treatise on Obstetrics as the best in the English language.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

STATED MEETING, THURSDAY, November 2, 1882.

The PRESIDENT, Dr. EDWARD L. DUER, in the chair.

PURPURA HÆMORRHAGICA.

DR. HENRY BEATES related the history of a child healthy for the first four months of its life, at which age it was attacked by thrush; ten days later an ecchymosis of purpuric character appeared on one leg, and a few days later spots of the same character appeared over the body; on the fifth day the stools were tarry, showing intestinal hemorrhage; a bronchial secretion was also stained with blood. On the seventh day a hemorrhage started from an abraded spot on the perineum. Various local styptics were applied to this spot, without success, until a red-hot needle was used as a cautery. On the tenth day a hemorrhage occurred from the canthus of one eye, and on the fifteenth day the child died from exhaustion. At the autopsy the internal organs were found quite exsanguine.

HEMORRHAGIC DIATHESIS.

Dr. WM. SAVENY related the history of a boy, 5 years of age, who had fallen and received a slight wound of the scalp from a nail sticking out of a post: it was a mere scratch, and did not need a stitch to hold it together, but it bled profusely. All sorts of domestic remedies, including cobweb, had been tried, without avail. The doctor finally succeeded with lint wet with Monsel's solution and continued firm pressure. A few days later the same boy fell off one step on to the floor; there was no external wound nor any loss of blood, but the side of the face was enormously swelled, from hemorrhage into the tissues. A course of iron and tonics has improved the boy's appearance, but he is still pale.

There were no evidences of hæmophilia in the family. The mother was pallid, had red hair, but did not lose much blood in labor.

Dr. HORACE WILLIAMS reported the case of an infant, aged nine days, who was attacked with purpuric spots over the body, and bleeding at the navel. To the latter were applied successively styptic colloid, tannin, Monsel's solution, Monsel's salt in powder, and finally transverse pins and figure-of-eight ligatures; but the bleeding reappeared as soon as the latter came away, and the child finally died from loss of blood.

Dr. R. A. CLEEMANN had under his care a young man who had previously suffered from profuse hemorrhage for two days, consequent on the extraction of a tooth: the hemorrhage was finally stopped by Dr. Hartshorn, who plugged the cavity with a styptic. Dr. H.

advised the young man never again to run the risk of a hemorrhage of any kind, as it would probably prove fatal. Recently he had been suffering severely from a toothache, which nothing but extraction could relieve. Dr. Cleemann put him on gallic acid internally, and tannic acid locally, for two weeks before the extraction, which was accomplished without any unusual loss of blood.

In a case of nasal hemorrhage, the anterior and posterior nares were plugged, but then ecchymoses appeared around the eyes and the plugs were removed; transfusion of a few ounces of blood was employed, and the hemorrhage ceased and did not return. The patient died three months later of phthisis.

Dr. E. L. DUER commended erigeron, or fleabane, when used internally, to stop hemorrhage. The oil may be given in doses of ten drops every ten minutes until the bleeding is checked, after which it may be continued at longer intervals until the tendency has passed away.

Dr. GITHENS confirmed these statements as to the value of this remedy.

REVIEWS AND BOOK NOTICES.

A PRACTICAL TREATISE ON DISEASES OF THE SKIN. By LOUIS A. DUHRING, M.D., Professor of Diseases of the Skin in the Hospital of the University of Pennsylvania, etc. Third Edition, revised and enlarged. Philadelphia, J. B. Lippincott & Co., 1880. 8vo, pp. 685.

This edition of Prof. Duhring's well-known work has, like the previous one, though following it only by a twelvemonth, been critically revised. The chapter on the anatomy and physiology of the skin has been rewritten and elaborated, recent studies in microscopic anatomy demanding the change. The work, as a whole, has been considerably enlarged, almost every page bearing the evidence of the author's painstaking and laborious revision. We are glad to observe the brilliant success of this epoch-marking work, which is testified by the simultaneous appearance of French and Italian translations, as well as by its general use in this country. The change wrought in a decade by Duhring and other of our American dermatologists is a subject of sincerest congratulation to all who rejoice at the progress of rational medicine. The former complicated nomenclature, in which sixty terms were in use to designate one disease, has given way to the simplicity of the dermatology of to-day, in which scarcely more than twice that number suffice to describe all known diseases of the skin.

In diagnosis and treatment, also,—the two most important points in the practical study of diseases of the skin,—Prof. Duhring's book is not merely up to the times, but it leads; for there are various methods of treatment brought forward here which have hitherto appeared only in special journals and transactions, or which have been derived from the author's personal experience. The student and practitioner can find no better guide to the treatment of skin diseases than Duhring's Treatise.

A SYSTEM OF HUMAN ANATOMY, INCLUDING ITS MEDICAL AND SURGICAL RELATIONS. By HARRISON ALLEN, M.D. Philadelphia, H. C. Lea's Son & Co., 1882.

It has been known by the personal friends of Dr. Allen, and indeed by a much larger circle of the profession, for many years, that he was engaged upon a work upon human anatomy which in completeness should attempt to be absolute. The idea of the author has been, in the first place, that everything should rest upon personal examination and verification,—not a copying from some other book,—and that the illustrations should all be actual representations of dissections, and not diagrams; in the second place, that by a very thorough ransacking of medical literature cases and references should be acquired to illustrate all anatomical points in their practical relations. The first of the two parts which have so far reached us is taken up by an excellent *résumé* of human histology by Dr. E. O. Shakespeare; in the second part Prof. Allen considers the bones and the joints. We have carefully looked over this Part Second, and find that the ambitious programme the author set himself has been laboriously and fully carried out; and we know of no anatomical treatise that can compare with the promise of this early portion of the book. If any one wish hastily to get an idea for himself as to the scope and character of the work, let him look at the article "Axilla," and we think he will conclude that he must have the whole work in his library for leisurely study and for frequent reference.

The completed volume will be a remarkably handsome quarto of five hundred and fifty pages, with one hundred and nine plates, containing three hundred and eighty figures, and two hundred and fifty wood-cuts in the text. The subscription price is $21.00 ($3.50 a part).

THE PHYSICIAN HIMSELF. By D. W. CATHELL, M.D. Baltimore, Cushings & Bailey, 262 West Baltimore St., 1882.

In this brochure Dr. D. W. Cathell considers the arts of success, other than those based upon professional skill, in a manner which is both shrewd and amusing. The tone of the book is of necessity a low one. Its idea is that, in all his acts, the first thought of the doctor should be, How can I lead that man whom I am meeting to consult me, and, when I get him thus far, how can I hold him?—and that he should never allow himself a straightforward, honest acting out of his own personality. A physician who follows Dr. Cathell's

advice undoubtedly may expect success, but he becomes in verity a slave to his profession or to his own desires for practice; and for eight dollars a day, the sum mentioned as an ordinary maximum average of receipts by Dr. Cathell, the game is not worth the candle: better, if necessary, to pinch until a thousand dollars are saved, go to Dakota or other wild region, take up land, and be honest and independent.

SYPHILIS. By PROF. V. CORNIL. Translated, with Notes and Additions, by Dr. J. HENRY C. SIMES and Dr. J. WILLIAM WHITE. Philadelphia, H. C. Lea's Son & Co., 1882.

The book of Cornil is known as one of the standard treatises upon syphilis, and Drs. Simes and White have, by their smooth, flowing translation, put under obligations that portion of the Anglo-American profession that does not read French comfortably. The notes and additions seem to us very judicious. The typography and illustrations are very good.

GLEANINGS FROM EXCHANGES.

TETANUS AND TETANOID CONTRACTIONS AFTER LABOR.—A case of obstetrical tetanus occurring at the Maternity Hospital, New York, is reported by Dr. Henry J. Garrigues, in the *American Journal of Obstetrics and Diseases of Women and Children* for October, and a careful review of the history of the subject is added, with tabulated lists of cases. The paper, however, is not merely devoted to puerperal tetanus, but considers tetanus and tetanoid spasms in their relation to any period of pregnancy, parturition, and lactation. Although described by the ancients, the disease does not receive much attention in our systematic treatises, because true tetanus is in America and Europe a very rare complication of the puerperal state, but, on the contrary, it is said to be very common in India. A hot climate is considered a predisposing element, and colored races are more liable to be attacked than white. As showing that infection has little to do with its causation, the fact is noted that it occurs more frequently in the country than in the city. Advanced age is a predisposing factor, and it seems especially that abortion in later years is dangerous. The liability after parturition decreases after the first pregnancy, that after abortion steadily increases with the number of pregnancies. Mental excitement, but especially hemorrhage (and of the form connected with retained fragments of placenta), early exposure to wet and cold, are named among the causes.

The symptoms do not differ from those of tetanus produced under other circumstances. It is of short duration and not infrequently fatal. Tetanoid symptoms, on the contrary, may be of hysterical or uræmic origin, are irregular in their course, and rarely dangerous. If due to uræmic, rheumatic, or malarial toxæmia, the treatment will vary greatly from true tetanus, for which the administration of narcotics and antispasmodics is especially indicated. Chloral, bromide of potassium, or nitrite of amyl, and other remedies, are approved; the use of ice-bags to the spine, when the temperature is high, laxatives if constipation exists, disinfectant intra-uterine injections, and the use of a nourishing and stimulating diet, are chiefly recommended.

HYSTERICAL SPINE.—There is a form of backache in which, according to Dr. Vincent (*Medical Press and Circular*), pressure does not increase the pain, but rather relieves it. There is no tenderness elicited by pressure with the open hand along the spine, but, on the contrary, if the finger be drawn lightly along the spinous processes, marked evidences of pain are noticed. On tapping the spine with the finger, the same cringing and flinching of the patient will occur, enabling the soreness to be localized. This is very apt to be in the lumbar region, especially if any uterine irregularity exist. There is great weakness of the muscles accompanying this condition, and the back is limp and bent. The prognosis is good, especially in the younger cases. Support, systematic exercise with the trapeze, the cold douche to the spine, or with the sponge, followed by friction, and moral treatment, are especially relied upon. Drugs are of little use, but the bitter and more unpleasant mixtures are preferred, in order to supply the patient with an inducement for getting well.

WHOOPING-COUGH.—At the last meeting of the Medical Society of London Dr. Dolan read an abstract of a paper on the pathology and treatment of whooping-cough, for which he had received the Fothergillian gold medal of this Society. Dealing with some points of pathogeny, he expressed his dissent from the view of Guéneau de Mussy, that the malady was a bronchial adenopathy, its chief symptom being induced by pressure on the vagus by the enlarged glands, and showed that this glandular enlargement was not always present in pertussis, and, further, that the glands may be swollen without producing the characteristic cough. The disease, indeed, bore much resemblance to those diseases the causes of which are now believed to be minute organisms or fungi. Its highly contagious nature, period of incubation, effervescence and defervescence, its regular course, and the immunity from subsequent attacks, were grounds of analogy determining the place of pertussis in the group of diseases caused by protophytic fungi. The attempt by Linnæus to prove that all diseases were produced by animalcula, or had an insect origin, foreshadowed the conclusions now arrived at by the discoveries of

Pasteur. In 1867 Poulet found bacteria in the sputa of pertussoid patients, and Letzerich had induced whooping-cough in rabbits by inoculating the trachea with sputa from the human subject. The author had repeated these experiments, and found that whilst inoculation with the blood of whooping-cough patients was without effect, that of sputa and other secretions caused death. He had found also, on microscopic examination of sputa, ordinary bacteroid forms and a microbe resembling the Spirochæte plicatis of Cohn. The application of special methods of staining, as employed in the detection of the Bacillus tuberculosis, would no doubt reveal the special microbe of pertussis. Admitting the fungoid nature of pertussis, its contagious property was easily explained by germs being thrown off into the air and received into the body, setting up constitutional disturbance, and subsequently attacking the pulmonary epithelium, giving rise to all the phenomena of pertussis. No pathognomonic lesions could be detected on post-mortem examination, for the simple reason that whooping-cough was rarely fatal. Death resulted from complications which were very numerous. As to glycosuria in whooping-cough, he had found it present in fourteen out of fifty cases. Turning to the question of treatment, he pointed out the necessity for measures of isolation in preventing the spread of the disease, for the enforcement of which measures the co-operation of all classes of the community was needed; and, although the course of the disease could not be controlled by treatment, the patient could be placed in the most favorable circumstances towards recovery; certain painful and prominent sources of trouble could be relieved, and complications guarded against, so as to assist nature in her efforts to throw off the disease. There is no panacea or specific remedy; but if the dependence of whooping-cough upon a specific virus be the true explanation of its pathogeny, the lines on which its rational treatment and prophylaxis are to be pursued become clearer and more hopeful.—*Lancet.*

DISTENTION OF THE RECTUM TO FACILITATE OPERATIONS UPON THE PELVIC VISCERA BY LAPAROTOMY.—At the recent meeting of the British Medical Association, Dr. Garson presented a brief communication showing the advantages of distention of the rectum by water only, or by water contained in a rubber bag. In a section of a frozen body it was found (the bladder being also distended) "that the bladder was entirely raised up out of the pelvic cavity, and along with it the peritoneum also, both in front and behind; so that the bladder occupied much the same position that it does in the new-born child." On comparing this section with a normal one, it was found that the distance of the internal orifice of the urethra behind the symphysis pubis remained equal, so that the displacement of the bladder evidently took place in a plane parallel to that of the symphysis. The dislocation of the bladder was produced, not by raising of the perineum, but by stretching of the urethra in its so-called fixed parts. The prostate was stretched to nearly double its ordinary length, and was flattened. The membranous portion of the urethra was not quite so much stretched, but was considerably longer than usual. The position of the peritoneum in front of the bladder is expressly noteworthy. As a rule, when the bladder is filled to the same extent that it was in this case, the peritoneum is only elevated above the symphysis pubis a few millimetres; but in the section there was, between the upper border of the symphysis pubis and the peritoneum, a clear space of four centimetres,—a space which would have admitted of the extraction from the bladder of a very large stone by the supra-pubic method, without injury to the peritoneum. The results obtained in this section were confirmed by subsequent observations of a similar kind on other subjects, and in some cases the distance between the symphysis pubis and the peritoneum was greater, being as much as six centimetres in one subject, where the bladder was even filled with a less quantity of water (200 grammes). By varying the quantity of water injected into the bladder and rectum, it was found that the internal orifice of the urethra was not altered as to its distance behind the symphysis, but its distance from the plane of the conjugata vera varied according to the state of distention of the rectum. The depth of the peritoneal pouch behind the bladder is always diminished by distention of the rectum.

This procedure may not only prove of service in the operation of supra-pubic lithotomy (in which it has already been utilized by Trendelenburg, of Rostock), but also in operations upon the uterus or its appendages during laparotomy.

PUERPERAL FEVER.—In the *Edinburgh Medical Journal* for October is contained an interesting and short paper by Mr. John Lowe, on "Puerperal Fever: its Treatment and Prevention," in which occurs the following judicious expression of views in regard to treatment:

"I am strongly of opinion that by early and repeated aseptic intra-uterine injections, a rapidly acting cholagogue, washing out the bladder, if necessary, with some aseptic solution, and the timely and liberal use of stimulants, will avert death in many instances. It is no use giving the nurse instructions to wash out the uterus; we must do so ourselves by means of a long tube in the uterine cavity itself. Ammonia and brandy I regard as the medicines for the disease; indeed, when food is refused, brandy is not only most grateful to the patient, but is peculiarly well adapted to supply the place of ordinary food, and no

amount of fever or other symptom contra-indicates stimulation when changes so destructive to the vital fluids and tissues of the body are in terribly rapid progress. To give aconite or veratrum viride in such cases is, in my opinion, as unscientific as it is useless; and yet these remedies have been vaunted and are actually used by men of undoubted ability and eminence. To get rid of a fermentative poison from the blood, we must adopt some such practice as I have indicated, and not stop to theorize about the physics of the circulation. We must, in other words, support vitality and eradicate the poison. That salicylates and sulpho-carbolates taken internally do not rectify the turbid urine in puerperal fever I am convinced from experience; and I would strongly urge that all depressant remedies are both hurtful and dangerous."

The use of carbolic spray, and irrigation of the uterus and vagina with carbolic solution, immediately after labor, are considered important means for the prevention of puerperal septic poisoning.

OPERATION FOR VARICOCELE.—In the *Lancet* for September 30, Mr. Barker describes a simple operation for varicocele which he had carried out successfully in three cases. The operation is evidently a radical one, and, with the antiseptic precautions, causes much less inconvenience or trouble to the patient than the usual methods. It was prepared as follows:

The skin of the scrotum was thoroughly cleansed with a five-per-cent. carbolic lotion, as also all instruments and the surgeon's hands, no spray being used. The scrotum was then pinched up between finger and thumb in the usual way, so as to include the veins and exclude the vas deferens; it was then notched with a scalpel, and through the opening thus made a needle bearing a medium-sized twisted silk ligature (previously soaked for about an hour in the same carbolic solution) was passed. The veins were then allowed to slip backwards, and the needle was made to carry the silk forward again through the same puncture, but this time in front of the veins. The latter were thus, of course, included in the two loops of silk leaving the scrotum by the same aperture. The ends of these were now tied tightly over the veins about one-eighth of an inch apart. They were then cut short and allowed to slip into the scrotal tissues. Everything was in the mean time protected from any contamination by frequent wiping with a carbolized sponge. A little padding of salicylated wool was the only dressing.

THE PARASITIC ORIGIN OF VESICAL CALCULI.—According to Dr. Zancarol, of Alexandria, the prevalence of distoma hæmatobium as a trematode parasite among the Arabs frequently leads to the formation of calculi in the bladder. The usual habitat is the portal vein, but the ova, which are shaped like cucumber-seeds, may appear in the urine as well as in the fæces. Their number is prodigious, and, deposited in the portal system of veins, they accumulate in the vesical veins, and thence find their way into the submucous tissue of the bladder in such considerable masses that at places the mucous membrane ruptures and so gives rise to frequent and intractable hemorrhages. These infiltrations in the submucous tissue and in the reticulum of the mucous membrane lead to subacute and chronic changes, to villous and fungoid vegetations, which, from their favoring the decomposition of the urine, become coated with calculous incrustations of considerable extent. The bladder, as it thus becomes thicker, loses its elasticity. The incrustations detach themselves in places, agglomerate together, and so form the nucleus for a calculus, which then enlarges by successive layers deposited on its surface. On some occasions the external membranes of the ova have been found in the centre of a calculus as its nucleus.—*Medical Times and Gazette.*

THE MICROSCOPE IN DIARRHŒA.—A number of cases of diarrhœa occurring together, when hot weather had been followed by rain, the epidemic was studied by Mr. K. W. Millican (*Lancet*) with the aid of the microscope. A short period of incubation occurred, during which the patients were depressed and out of sorts, and this was followed by a prostrating attack of diarrhœa. The stools were fluid, not unlike those of typhoid fever, and contained in every instance small gelatinous or albuminous lumps like half-cooked white of egg. The odor was extremely offensive. Beyond the prostration, however, and general gastric disturbances, with excessive flatulent distention and pain, there were no constitutional symptoms. In no case was there any marked rise of temperature, nor was the pulse greatly affected.

The lumps of gelatinous material were submitted to microscopic examination, with the result of detecting large numbers of bacteria, in granules, short fine rods, long fine-pointed rods, and curled twisted ones; and also mycelial threads. The method of examination pursued was to allow some of the gelatinous material to dry on the slide, float it on aniline blue solution until stained, then wash with nitric acid, and finally in distilled water; the slide was then dried, and mounted in Canada balsam. The $\frac{1}{5}$ or $\frac{1}{4}$ inch objective was sufficient to detect these organisms.

KNEE-CHEST POSTURE FOR DISLODGING LOCKED TWINS.—A new procedure for dislodging locked twins is described, with an illustrative case, by Dr. T. S. Galbraith, of Seymour, Indiana, in the *American Journal of Obstetrics*. Being summoned hastily to a case of difficult delivery under the charge of

a midwife, he found a child delivered, except its head, which, with the chin extended, was in the right oblique diameter of the pelvis. The head of another child was also found occupying the cavity of the pelvis, presenting with its occiput to the front, and was driven down so firmly as completely to bar the further progress of the labor. With the patient on her back, the second head was immovable, but on causing her to assume the knee-chest posture the attendant found himself able to push it out of the way by introducing his hand, and a few seconds later the first child was delivered still-born; the second was delivered with the forceps, and survived. This case was originally reported in the *American Practitioner* for May, 1880, but is now republished with a wood-cut. The advantages of this procedure over the ordinary treatment in the text-books is very obvious.

PHYSIOLOGICAL EFFECTS OF HYOSCYAMIA.—Dr. H. A. Hutchinson, of Pittsburg, contributes (*Alienist and Neurologist*) his personal experience with Merck's hyoscyamine, of which he took one-fourth of a grain in order to test its hypnotic effect while in a good state of health. His feelings are thus graphically described:

"Immediately I noticed a decided dryness of the mouth and throat, and almost a total absence of saliva, and difficulty of deglutition. Looking in a mirror, I noticed an intense congestion of my head and face, the carotids throbbing violently with every impulse of the heart. Along with this there was acceleration of the pulse and respiration, accompanied by a feeling of numbness extending over the entire body, with loss of power in producing the ordinary movements of coordination. I made an effort to 'walk it off,' but soon found my feet becoming so enfeebled that I could only walk by fixing my eyes intently on the ground. Had any one noticed me at this time, I should have had some difficulty in establishing the fact that I was not deeply intoxicated. Finding that exercise would not relieve me from the poisonous effects of the drug, I, with much exertion, ascended the stairs to my room for the purpose of retiring to bed.

"My mental faculties up to this point were intact, and I fully realized my unpleasant position, but had no fear of any fatal result. Indeed, I was entirely oblivious to everything, past, present, or future, and cared little for anything except sleep. So imperative and overwhelming was this demand, and the general helplessness of my limbs so rapidly increased, that I was only able to throw myself upon the bed without undressing, and was soon in a deep slumber or coma, which lasted eleven hours. During this period I have no recollection of anything. I was not disturbed by any delusion or dream, or conscious of the presence of any one or of my own existence.

"Medical friends who were present with me during those eleven hours, alarmed at the profound stupor in which they found me, and not knowing I had been experimenting with hyoscyamine, resorted to every expedient to bring me out of what they supposed an apoplectic coma. Resort was had to sinapisms, dry cupping, application of cold to the head, flagellation by wet towels, etc.; but all efforts were unavailing to awaken me, or produce any evidence of consciousness.

"I am told that during this prolonged sleep there was entire relaxation of all the voluntary muscles, except occasionally some spasmodic movements of the arms and legs; the pulse ranging during the first few hours at 138, full and hard; respirations numbered thirty-four to forty, and temperature 106° F.

"As the narcotic effects of the alkaloid passed away, the pulse rapidly fell to 106, temperature declined to 99°, and the respirations were reduced in frequency; but consciousness did not return for several hours after this.

"When I did regain consciousness, I had great difficulty in collecting my thoughts or concentrating my mind on any particular subject. There were no hallucinations, delusions, or illusions, but for twenty-four hours or more every object on which I looked was tinged with yellow.

"It seems that during the period of sleep I suffered more or less from nausea, and at one time vomited, although I had not the slightest recollection of having done so."

For several days after his recovery the pupils were very considerably dilated, and he was annoyed with double vision and a general arrest of the various secretions of the body, as well as the excretions from the skin.

APHORISMS ON TREATMENT OF DISEASES OF THE EYE.—Dr. Chisolm, chairman of the Section of Ophthalmology at the recent annual meeting of the Medical and Chirurgical Faculty of Maryland, lays down these aphorisms: (1) Do not blister, in nine cases out of ten it is useless torture; (2) do not use nitrate of silver, in not one case out of fifty is it beneficial as generally prescribed; (3) do not use acetate of lead, for fear of leaving lead-marks on the cornea; (4) weak astringents are the best remedies for affections of the mucous surface, combined with absolute cleanliness; (5) use weak solutions of eserine for corneal affections; (6) atropic solutions are essential for breaking up recent iritic adhesions; (7) when in doubt, call in a specialist. Eserine, he observes, is beginning to play a very conspicuous part in a great number of eye-diseases, supplanting atropia to a great extent. The strength of its solution is one part in two hundred parts of water. A drop of this in the eye on rising will, in photophobia and commencing presbyopia, sharpen the eye for vision for reading during the day. It is effi-

cacious in all cases of increased tension of the eye, of which glaucoma is the type. In all corneal affections eserine has taken the place of all other remedies.—*Boston Journal of Chemistry.*

THE MICROBE OF TYPHOID FEVER.—From the careful researches, extending over eight months, of Dr. Almquist, of Stockholm, recorded in the *Nordiskt Medicinskt Arkiv*, he has arrived at the following opinions. The bacterium of typhoid develops principally in the intestinal wall; it occurs only by accident in the blood, and only in very small numbers ordinarily. Where more are found, they appear to be composed of bacteria, which, after having formed thrombi in the blood, have become broken into particles. Six forms of bacteria are figured. From the researches thus far, he believes that the microbe which he describes cannot strictly be classed among the genera bacillus, micrococcus, or bacterium, but that the series of development comprises the following phases. The spore shoots forth a thread; several threads then form a net-work, or mycelium, or a zooglœa of threads. If the spores are completely formed in the threads, then the zooglœa of threads may be transformed into a zooglœa of delicate grains. These conclusions are not final, as Dr. Almquist is still pursuing his researches.

IODIDE OF POTASSIUM IN FRONTAL HEADACHE.—Dr. Haley states, in the *Australian Medical Journal*, that for some years past he has found minimum doses of iodide of potassium of great service in frontal headache. A heavy, dull headache, situated over the brow, and accompanied by languor, chilliness, and a feeling of general discomfort, with distaste for food, which sometimes approaches to nausea, can be completely removed by a two-grain dose dissolved in half a wineglass of water, and this is quietly sipped, the whole quantity being taken in about ten minutes. In many cases the effect of these small doses has been simply wonderful. A person who, a quarter of an hour before, was feeling most miserable and refused all food, wishing only for quietness, would now take a good meal and resume his wonted cheerfulness. The rapidity with which the iodide acts in these cases constitutes its great advantage.—*Boston Journal of Chemistry.*

TREATMENT OF MALIGNANT PUSTULE.—A shepherd, suffering from malignant pustule of the face, was treated in the ordinary way, without checking the progress of the disease. Tincture of iodine was then given internally, antiseptic washes being continued. Hypodermic injections of a two-per-cent. solution of tincture of iodine were also administered around the zone of inflammation, and subsequently into the œdematous region. The next day the delirium as well as the sweats and chills had disappeared, and the pulse was stronger. An inflammatory circle was visible around the eschar. A continuance of the treatment resulted in a complete cure.—*La Revista de Méd. y Cirugía Pract.; The Practitioner.*

PITYRIASIS AND ITS PARASITE.—M. Vidal gives a *résumé* of his observations on the affection of the skin described by him under this name. The eruption begins by small rose-colored spots, scarcely raised above the level of the skin. Their surface is dry and slightly scaly. The spots are irregularly distributed, usually beginning on the trunk, but occasionally extending to the arms and thighs. They extend slowly. M. Vidal believes that he has discovered a special parasite in this affection, consisting of very minute spores, averaging a thousandth of a millimetre in diameter. The extreme smallness of the spores and their irregularity in size have induced M. Vidal to name the parasite *Microsporon anomæon* or *dispar.*—*Annales de Dermatologie et de Syphiligraphie*, vol. iii. No. 1; *Practitioner.*

SUCCESSFUL NEPHROTOMY.—An interesting case is mentioned, in an address by Mr. T. R. Jessop, of a female patient suffering with marked evidences of renal disease. Purulent urine was being painfully squirted every few minutes from an intolerant bladder. Physical examination of the patient's abdomen, loins, and pelvis, and chemical and microscopic examination of the urine, revealed no more than the single fact of purulent urine. In the hope of relieving her most distressing symptoms, he resorted to the operation of dilating the neck of the bladder; and when, after its completion, the forefinger was swept round the interior of the viscus, he was struck by the fact that the left ureter could be felt in the wall of the bladder as prominent and as firm as a piece of whipcord, whilst the orifice of the right could with difficulty be made out. Immediately it became clear that the mischief was seated in the left kidney, and with perfect confidence the steps for nephrotomy were taken; the kidney was exposed in the loin, its substance was incised, and from its pelvis there exuded from two to three ounces of offensive pus, the evacuation of which, as the event has shown, proved to be the initial step in an uninterrupted recovery.

HOW TO MAKE A POULTICE.—By making a flat flannel bag, in size say twelve inches by eight inches, with one side longer than the other, so that it may fold over the open end like an envelope, according to Lauder Brunton in the *Practitioner* (October, 1882), a valuable means of applying moist heat is furnished. Linseed meal being prepared in the ordinary way with boiling water, the desired quantity of the mass is next introduced into the bag, the flap being then fastened with a few stitches. One or two folds of flannel may be

laid between this and the skin; and tapes may be fastened to the four corners to keep it in place. The advantages of this form of poultice are that it may be applied boiling hot without burning the skin, it does not need frequent renewal, it is cleanly, and it is very efficient, especially for the relief of spasmodic pain or abdominal cramps, or in inflammation of the thoracic or abdominal viscera. It is not intended to supersede the ordinary form where the poultice is intended to act directly on the surface, as in wounds, ulcers, and abscesses, but its usefulness is more apparent in medical cases.

A Simple Means of checking Pulmonary Hemorrhage with Shawl-Straps.—Dr. H. Holbrook Curtis gives, in the *New York Medical Record*, a novel way of arresting pulmonary hemorrhage. Called in a case of emergency, Dr. Curtis purchased a pair of ordinary shawl-straps punched with holes a quarter of an inch apart, and braided three strands of drainage-tubing, making two cords of as many feet long. He laid a folded napkin over each femoral vein just below the fold of the groin, and adjusted the straps about the thighs as high up as possible, so that the buckles would be over the napkins. The straps were tightened enough to stop the venous return without interfering with the arterial supply of the extremities. Then the arms near the shoulders were bound by the rubber tubing. The hemorrhage was checked almost immediately, and in about five minutes the straps and tubing were loosened. This was no sooner accomplished than the patient complained of a great shock to "the sore place," and the bleeding recommenced. The same procedure checked it as before. In about five minutes, the extremities becoming markedly cyanotic, the straps were loosened, a hole at a time, when no hemorrhage recurred. The shallow and difficult respiration was greatly relieved by keeping an arm and the opposite leg strapped. As soon as a member became cyanotic, the strap was changed to the opposite side.

Transplantation of Muscle.—Dr. Helferich, of Munich, after the removal of a large fibro-sarcoma from the biceps muscle of a woman, aged 36, refilled the gap left vacant with a freshly-cut piece of muscle taken from a dog, fastening the same with six lower and thirty upper catgut ligatures. A cure followed the antiseptic treatment. The patient can now readily flex and extend the arm. An electrical examination instituted by Ziemssen did not show any abnormality, and it appears, therefore, that the transplanted muscle has retained its vital function.—*Berliner Klinische Wochenschrift*, No. 26, 1882.

M. Pasteur demonstrated, two years since, that fowls contracted charbon only when their temperature was lowered, their normal temperature being 111° Fahr. M. Paul Gibier has recently determined that frogs contracted charbon when under the influence of relatively high temperature. He placed twenty frogs in tepid water, and inoculated them with charbon virus. Five of them contracted the malady. Their blood indicated the presence of bacteria. These elements were larger than those observed in the bovine and ovine species. Guinea-pigs and rabbits were inoculated with the blood of the frogs, and contracted charbon.—*British Medical Journal.*

Recovery from Broken Neck.—A case of fracture from direct violence of the laminæ of the fifth and sixth cervical vertebræ, without dislocation, followed by recovery, is reported to the *Lancet*, October 21, by Mr. C. Jordison. Paralysis of the left arm, also, though not complete, in the left leg and right arm, appeared at once or very early in the case. The arms were again paralyzed about the fourth week,—probably due to the pressure of the callus on the roots of the brachial plexus. There was also marked atrophy of the muscles, especially of the left hand and arm and the pectorals; and intense hyperæsthesia. Complete rest was required for several months, but in the sixteenth week the patient was riding horseback, and by the twenty-fifth had entirely recovered, except slight weakness in the left arm.

Intestinal Obstruction relieved by Massage.—Dr. Bitterlin reports a case of intestinal occlusion accompanied with much pain, vomiting of fecaloid matter, hiccough continuing in spite of treatment for eight days, finally relieved by kneading and malaxation of the belly. The manipulation was very painful. Some instants after, violent colic came on, and gurglings, the bowels shortly afterwards moved, and the patient recovered. Dr. Bitterlin mentions a second case in which he was called in consultation, where the same treatment was followed by the same happy results.—*L' Union Médical.*

Lycoperdon Giganteum as a Hæmostatic.—In Ireland the giant puff-ball is popularly used as a hæmostatic and surgical dressing. Dr. E. Thompson reports (*Lancet*) a case of open cancer of the breast that experienced much relief, not only from lessening of discharge, but also decrease of pain after its use, so that the general health improved and the patient lived for seventeen years afterwards.

Treatment of Ringworm of the Scalp.—Dr. Adler Smith recommends oleate of mercury with ung. petrolei (ten per cent.) in chronic cases of tinea of the hairy scalp. This causes less irritation than the ordinary preparation, and children bear it well, although if the cases are under seven years of age it may be found necessary to dilute it further. —*British Medical Journal.*

PROSTATORRHŒA AND SEMINAL LOSS.—Dr. Campbell Black divides prostatorrhœa into two forms, the discharge in one being characterized by the presence of spermatozoa, while in the other this element is wanting. Prostatorrhœa, with seminal loss, may be excited by any condition determining vascular plethora in the pelvic viscera, not necessarily dependent upon urethritis, but possibly secondary to passive congestion of the prostate and adjacent organs.—*Lancet.*

POMADE FOR COMEDONES.—Kaolin, four parts; glycerin, three parts; acetic acid, two parts, with or without the addition of a small quantity of some ethereal oil. With this pomade Unna (*Virch. Archiv*) covers the parts affected in the evening, and, if need be, during the day. The comedones can be easily expressed after several days, most of them coming out by washing the parts with pumice-stone soap.

DR. LAMALLERÉE, of Paris, is said to have successfully used the particles taken from the skin of the rabbit for skin-grafting, with complete success. This is the more important as M. Féréol, also of Paris, has recently added another to the list of cases in which syphilis has been conveyed by skin-grafting.

LITHOLAPAXY IN ENGLAND.—A stone weighing over two ounces was removed by Reginald Harrison from a man 27 years of age, by the use of a smooth-blade lithotrite and Bigelow's aspirator. The patient recovered, and an examination of the bladder gave no further evidence of calculus.—*British Medical Journal*, October 7.

ANÆSTHESIA OF THE PHARYNX.—According to M. Cozal, painting the mucous membrane of the pharynx with the tincture of coca will secure anæsthesia of the part. If this be true, the result is probably due to the alcohol.

MISCELLANY.

EUCALYPTUS-CULTURE.—The success of the Trappists in the cultivation of the eucalyptus in the neighborhood of Rome, and the improved sanitary state of what was formerly a terribly malarious region, have been widely commented upon. A writer in the *Revue des Eaux et Forêts* gives some interesting details. The experiment was begun in 1870, by planting some of the seed in a highly malarious region, about one and a half English miles out of the Porta di San Paolo. At the beginning, the monks were obliged to return to the city to sleep at night, but at the end of five years, when the trees around their buildings had attained some size, they found the salubrity so increased that they could sleep there unharmed. These results coming to the notice of the Italian government, arrangements were made for establishing, under the care of the Trappists, an experimental farm at Trois Fontaines, for the reclamation and improvement of certain adjacent lands by convict labor. The results now are announced as fully satisfactory, and the success is in marked contrast with the failures in other parts of the Campagna and in private gardens within the city. The agreement with the government stipulated that twelve thousand five hundred trees should be set out annually, and this number was exceeded in 1880 and 1881. Most of the trees are reported as doing well, and there is no question as to the fact of their anti-malarial influence, whatever may be the proximate cause.

The country in this region is flat, the soil principally clay and rocky, and water is found at the depth of eighteen inches to three feet. The trees are set out in two-feet trenches, about three hundred and sixty to the acre. They require a good deal of water. The seed is sown in light, open frames, in soil of the kind in which the trees are eventually to grow. When two to four inches high, the seedlings are picked out, at distances of four inches apart each way, in boxes holding forty plants each. In these they are housed under glass during the winter. This protection is not indispensable except in unusually severe weather, but the plants are better for being spared. They are set out in April, after the frosts are over. Each plant requires one and a half to two gallons of water weekly during the hot months after planting. Sulphuring is also necessary to keep off the insect pests. At Trois Fontaines, wheat, oats, maize, or rye is sown between the trenches when the trees are planted, and, after this is cut, sheep are turned into the stubble, as the bitterness of the leaves is sufficient protection to the plants. *Eucalyptus globulus* and *E. resinifera* are the predominating species; the latter is more valuable, as it seeds after the fourth year, whereas the former does not seed until its fifteenth year, when the increased size of the tree renders the collection of the seed a more formidable task. Trials are also to be made of the *E. amygdalina*, the only eucalyptus which stood the winter of 1879–80 in Upper Italy, and the *E. melliodora*, so called from its sweet odor, the hygienic value of which, however, is not esteemed as highly as the other species. Great differences have been noticed in the rate of growth, and possibly in the activity, of different varieties. The Trappists use the bark for tanning, and manufacture a liqueur from the leaves, which, with the seeds of the trees, is now bringing in some revenue.

Mr. H. M. Chichester, commenting upon the above in the *Journal of Forestry*, insists upon the great attention required to the young plants, securing healthy seedlings, and looking well after them when first planted out, especially as regards regular

watering. The balsamic emanations are most redundant at a temperature of 68° F., or above; in winter their presence in the atmosphere is imperceptible. The conclusion appears to be that their value will be most evident in those countries where the malarial influence is most malignant during the summer heats, when the functional vigor of these trees is in its fullest activity. This is the case in the Mediterranean countries, where the hygienic value of the eucalyptus has been established, as at Trois Fontaines, and in Corsica; and he inquires, "Does this fortunate coincidence obtain in respect of all the miasmatic and malarious sites where eucalyptus-planting has been tried or proposed as a panacea?"—*Physician and Surgeon.*

THE CULTIVATION OF PERSIAN INSECT-POWDER.—Jamtiloff, an Armenian, recognizing the value of Persian insect-powder, ascertained its source, though he never undertook its manufacture; but in 1828 his son began to put large quantities on the market, and it has since become an important article of trade. The variety then used was *Pyrethrum roseum*, the *Pyrethrum cinerariæfolium* not being known until later; and now still other varieties are known to possess similar qualities. In Dalmatia, where it is largely cultivated, the insect-powder comprises several varieties; but the pyrethrum grows wild in the Russian province of Transcaucasia. The cultivation of the pyrethrum was introduced into America about ten years ago, and it has since been cultivated usually—especially the *Pyrethrum roseum*—for ornament, but in some places for profit. Mr. G. N. Miles, of Stockton, California, has succeeded in raising plants from Dalmatian seed, and has made powder of excellent quality (Report of the Commissioner of Patents, 1861). Mr. P. Henderson, of New York, says that the plants are easily raised from seeds and cuttings. In France, according to Willemot, a fresh, dry, rather silicious soil is preferred, with a southern exposure. The seed is planted from March to April (even in February, if the weather permits), lightly covered, pressed down, and rolled. It must be wet every five or six days, and transplanted when the plants are large enough, and placed six inches apart. They blossom from May to September in the second season.

REDUCTION IN THE PRICE OF QUININE.—Ten thousand ounces of quinine were recently sold in this country for $1.47½ per ounce. The cause of this great fall of price seems to be chiefly the glutting of the market for cinchona bark with cupræa bark, although other factors are at work.

The manufacture of quinine throughout the world is in a few hands. The Boehringers, one of Milan, Italy, and the other of Mannheim, Germany, are the most prominent of all the European manufacturers, the annual production of the Milanese factory alone being 1,200,000 ounces, which is nearly one-third of the entire consumption of the world. The leading manufacturer in England is Howard, and in France Pelletier. In this country the two largest manufacturers of quinine are Powers & Weightman and Rosengarten & Sons, both of Philadelphia. Charles T. White & Co. and McKesson & Robbins, of New York, are also large manufacturers of the article. It is affirmed that the Italian firm is now endeavoring to destroy the rival manufacturers, with the expectation of afterwards raising the price when the monopoly has been secured. It seems that a London syndicate some time ago secured about 15,000 bales of cupræa and other barks at an extraordinarily low figure, and sold them to Boehringer, of Milan, at an advance of ten per cent., so as to offer a tempting opportunity to the grasping Italians. It is, however, to our thinking, impossible to crowd out firms like the large manufacturers of our city, whose quinine-works are only a portion of their establishments, and who therefore can simply suspend the manufacture of the cinchona alkaloids until more favorable times. It is evident that Congress should reinstitute the quinine duty, or else take off the duties upon soda, amylic alcohol, Indian barks, and other materials used in the manufacture.

A FELINE TEST FOR SEWER-GAS.—"An ingenious woman," says a Boston contemporary, "recently invented what may perhaps prove to be an improvement on the peppermint test for leaky waste-pipes. Noticing, and having used the peppermint test for, an offensive odor in the parlor of the house which she occupied, she suspected a defect in the waste-pipes, and sent to the agent to request that a plumber might be sent to examine them. The agent was incredulous, and refused. To make her proofs more convincing, the woman, after borrowing two cats from her friends, purchased some oil of valerian, and, stationing the animals in the parlor, went up-stairs and poured the valerian into the basin in the same way that the peppermint had been previously applied, and then descended to watch the result. Cats are extremely fond of the odor of valerian, and it was not long before both of them began to sniff the air and move towards the door of a closet through which the waste-pipe ran. The door was opened for them, and they immediately sprang upon a certain shelf, where they remained, purring with satisfaction. A third time the woman went to the agent, who, though still unbelieving, consented to send a plumber to make further investigations; and on cutting away the plastering so as to expose the pipe, a joint was found completely separated at the place which the cats had indicated."

THE AMERICAN PUBLIC HEALTH ASSOCIATION held its Tenth Annual Session at Indianapolis, on October 17, 18, and 19.

Dr. R. C. Kedzie, of Lansing, President of the organization, occupied the chair and delivered a valuable address. The leading questions under discussion were vaccination, the National Board of Health, and contagious disorders. The resolutions from the Committee on Venereal Diseases, recommending the passage of laws to prevent the spread of contagious and infective diseases as recommended by Dr. Gihon, U.S.N., were tabled. Dr. Cabell read a report of the labors of the National Board of Health, which was well received, and a series of resolutions were adopted strongly endorsing the Board and urging its continuance and support. Owing to some misunderstanding, no social receptions were given to the Association. The officers for next year are—Dr. Ezra M. Hunt, of New Jersey, President; Dr. Albert L. Gihon, First Vice-President; Dr. J. E. Reeves, of West Virginia, Second Vice-President; Dr. J. B. Lindsley, of Nashville, Tenn., Treasurer; Drs. Thos. L. Neal, T. J. Turner, G. P. Conn, J. S. Billings, J. J. Speed, and H. D. Fraser, Executive Committee. Detroit was selected as the next place of meeting.

DISINFECTION WITH HOT AIR.—The value of hot air for disinfecting purposes depends, of course, on its power to destroy germs of disease. Koch and Wolfbeugel, from the German sanitary bureau, have made experiments in this direction, and found that air of a temperature of a little over 212° Fahr. cannot be endured by bacilli for over one and a half hours. Spores of mould-fungus are destroyed in an atmosphere of 230° to 240° Fahr. inside of one and a half hours. Spores of bacilli require a temperature of 284° for over three hours to be effectually destroyed. It appears that it requires a long time for hot air to penetrate into objects of disinfection. Small objects, pillows, bundles of cloth, were not completely disinfected after having been subjected to hot air of a temperature of 284° for three hours. Those objects are also considerably damaged by being subjected to such conditions.—*American Chemical Review and Journal for the Spirit, Vinegar, and Sugar Industry.*

ALTHOUGH there are four hundred thousand people in South London, there are but two hospitals—St. Thomas's and Guy's—which receive all cases that present without any challenge or recommendation. In Philadelphia and its suburbs there are about one million of people, and not one hospital open to every comer, except that of the Almshouse.

NIGHT MEDICAL SERVICE.—A night medical service will be established in Brooklyn next January. Those in Washington and New York are in active operation. *The Medical Record* states that the latter averages one or two calls every night.

M. DAVAINE, the discoverer of the bacillus of charbon, is dead.

NOTES AND QUERIES.

ACTION OF THE PHILADELPHIA COUNTY MEDICAL SOCIETY WITH REFERENCE TO THE ARMY MEDICAL MUSEUM AND LIBRARY.

At the last stated meeting of the Philadelphia County Medical Society, Dr. William Welch offered the following preambles and resolution, which were unanimously adopted:

"*Whereas*, There is reason to fear that at the next session of Congress an effort will be made to destroy the identity of the great Medical Museum and Library at Washington, by merging them into the general Congressional Library, and placing them under the control of the latter; and,

"*Whereas*, Under their present management this Museum and Library have grown to be the most valuable collections of their kind in the world, and are consequently of incalculable value to the cause of medical science, thus rendering their preservation and progress objects of deep interest to the medical profession of this country: therefore,

"*Resolved*, That the Philadelphia County Medical Society earnestly but respectfully requests the honorable senators and representatives of Congress to make no change in the present management of the Army Medical Museum and Library, but would urge upon Congress the importance of providing a commodious fire-proof building in Washington, for better preservation and protection of these invaluable collections."

H. AUGUSTUS WILSON, M.D.,
Corresponding Secretary.

OFFICIAL LIST

OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U.S. ARMY FROM NOVEMBER 4 TO NOVEMBER 11, 1882.

SPENCER, W. C., SURGEON.—In addition to his duties at Fort Snelling, Minn., to perform the duties of attending surgeon at Department Headquarters. S. O. 176, Department of Dakota, October 24, 1882.

AINSWORTH, F. C., ASSISTANT-SURGEON.—Granted leave of absence for one month, with permission to apply for extension of one month. S. O. 120, Department of Texas, November 1, 1882.

AINSWORTH, F. C., ASSISTANT-SURGEON.—The leave of absence granted November 1, 1882, is extended one month. S. O. 121, Military Division of the Missouri, November 9, 1882.

BARNETT, RICHARDS, ASSISTANT-SURGEON.—Granted leave of absence for one month, with permission to apply for extension of five months. S. O. 202, Department of the East, November 1, 1882.

BREWSTER, WM. B., ASSISTANT-SURGEON.—On being relieved by Acting Assistant Surgeon Potter, will proceed to Fort Bridger, Wyoming, reporting to the commanding officer thereof for duty. S. O. 116, Department of the Platte, November 4, 1882.

GRAY, W. W., ASSISTANT-SURGEON.—Granted one month's leave of absence on surgeon's certificate of disability, with permission to apply for an extension of five months. S. O. 103, Department of the South, October 31, 1882.

MCELDERRY, HENRY, ASSISTANT-SURGEON.—Upon arrival of Assistant-Surgeon Brewster at Fort Bridger, Wyoming, to be relieved and ordered to Fort Robinson, Nebraska, to report to the commanding officer thereof for duty. S. O. 116, Department of the Platte, November 4, 1882.

O'REILLY, ROBERT M., CAPTAIN AND ASSISTANT-SURGEON.—Detailed member of board of officers to assemble at Washington, D.C., to examine into and report upon qualifications of candidates for superintendents of national cemeteries. S. O. 254, A. G. O., October 31, 1882.

BRECHEMIN, LOUIS, FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Leave of absence for five months granted. S. O. 259, Paragraph 2, A. G. O., November 6, 1882.

APPEL, AARON H., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Leave of absence extended two months. S. O. 255, A. G. O., November 1, 1882.